

## The Priorities Quiz

(AIR CONDITIONING & REFRIGERATION NEWS, with the aid of a man who is actually engaged in handling much priorities work, will attempt to answer questions from readers about priorities problems. The editors will not guarantee to answer all questions, nor can they guarantee that the answers will be legally perfect, but an effort will be made to provide a guide to correct procedure wherever possible.)

### Revised Information on Certification Procedure

Q. There seems to be a wide difference of opinion as to when an order is properly certified so as to satisfy the Priorities regulations. Has there been any recent change in the rules and can you give us the latest official ruling?

A. There have been a great many recent revisions of both the CMP and the Priorities regulations. The question of certification, however, has not been changed. The Detroit Regional Office tells us that we can "quote" them as follows:

"Where you are placing an order with a preference rating but no CMP

allotment symbol, you must use the certification under Priorities Regulation No. 3. You may not use the certification under CMP Regulation No. 7 to certify this type of an order.

"Where you are placing an order with both a preference rating and a CMP allotment symbol (or just a CMP allotment symbol and no priority) you may use the certification under CMP Regulation No. 7 or any of the other CMP certifications in the appropriate CMP regulations. You may not use the certification under Priorities Regulation No. 3 to certify this type of an order."

There are three certifications most commonly used. The certification under Priorities Regulation No. 3, the certification under CMP Regulation No. 7, and the certification under CMP Regulation No. 5 (the MRO certification). The CMP Regulation No. 7 certification may be used in place of the MRO certification. You need only concern yourself, therefore, over the proper use of the Regulation No. 3 certification and that of CMP Regulation No. 7. This is as "official" as we can get it. It is true that there is a great deal of confusion on this question and while it may be changed so as to simplify the procedure the rule is still exactly as quoted above.

### Are Allotments on True Monthly Basis?

Q. A recent WPB announcement regarding the changes in CMP Regulation No. 1 says that applications and allotment are to be on a quarterly basis instead of monthly under the revised regulation. I understood that allotments had always been made on a quarterly basis under the Controlled Materials Plan. Is there some change here that I have missed? If so, will you please discuss these revisions for us.

A. It is true that CMP allotments were made for an entire quarter previous to this recent revision of CMP Regulation No. 1. However, the allotments were divided into thirds by a provision in CMP Regulation No. 1 which predicated that not more than one-third of the total allotment could be ordered for delivery in the first month of the quarter nor more than two-thirds in the first two months of the quarter. This had the practical effect of placing the allotments on a monthly basis even though the full quarter's allotment was handed out at one time.

This section of CMP Regulation No. 1 has been amended to provide that one who receives an allotment of controlled material may not request delivery at a greater rate than required to meet an authorized production schedule or in such an amount as would result in his having an inventory in excess of the 60-day limit imposed by CMP Regulation No. 2.

The so-called "one-third a month" provision has been entirely eliminated, thus, allotments are strictly on a quarterly basis. The revised CMP-4B application requests information by quarterly periods and does not ask you to break down your requirements into months. Both applications and allotments are, therefore, now on a quarterly rather than on a monthly basis.

Another very important change in CMP Regulation No. 1 is the modified allotment symbol which also reflects the change in emphasis from months to quarters. The numerical reference to the month has been eliminated and a reference for the quarter has been substituted in its place. Thus, an allotment symbol which formerly would have appeared as W-4-19 (the symbol 19 indicating the month of July, 1943) will now appear as W-4-3Q43 (the symbol 3Q43 representing third quarter, 1943). Future quarters will be similarly designated; that is, 4Q43 for the fourth quarter, 1Q44 for the first quarter, 1944, etc. This change in symbols will take place as of July 1, 1943. Authorized controlled material orders (copper, steel, or aluminum raw material orders) will still state a specific month, however, in which delivery is requested in addition to the modified allotment symbol.

## Text of Amended Schedule II to Order L-126-Types & Sizes of Condensing Units Permitted

(Portions in Boldface Type Are New or Changed Provisions)

Part 1071—Industrial and Commercial Refrigeration and Air Conditioning Machinery and Equipment.

(Schedule II to Limitation Order L-126, as Amended June 17, 1943)

Required Specifications for Refrigeration Condensing Units

§ 1071.4 Schedule II to Limitation Order L-126—(a) Definitions. For the purpose of this schedule:

(1) "Producer" means any person who produces, manufactures, processes, fabricates or assembles refrigeration condensing units.

(2) "Refrigeration condensing unit" means a specific refrigerating machine combination, of the open type intended for remote installation, usually consisting of a compressor, receiver, base, and the usually furnished accessories, with or without motor, and with or without condenser. As used in this schedule, the term refrigeration condensing unit refers only to such units which are to be used in a "system" as defined in paragraph (a) (1) of Limitation Order No. L-126.

(3) "Open type" refrigeration condensing unit means that type of unit in which the motive power and compressor are interconnected in such a way that a refrigerant shaft seal is necessary.

(4) "Model" means a specific combination of the following items in a refrigeration condensing unit:

- (i) Base.
- (ii) [Revoked June 17, 1943].
- (iii) Condenser.
- (iv) Number of cylinders.
- (v) Bore and stroke.
- (vi) Motor (H.P. rating).

Any change in the size or capacity of any one of the above items constitutes a change in model, except that conversion of a water cooled to an evaporatively cooled condensing unit does not constitute such a change in model.

(5) "Compressor body" means that part of a compressor which consists of a specific combination of bore, stroke, valve, and cylinder.

(6) "Duplex condensing unit" means any refrigeration condensing unit consisting of two or more compressors which are powered by one or more motors mounted on a common base, and which discharge into a common condenser.

(7) "Lend-lease country" means the government of any foreign country receiving aid pursuant to the Act of March 11, 1941, entitled "An Act to Promote the Defense of the United States" (Lend-Lease Act).

(8) "Sealed type" refrigeration condensing unit means that type of unit in which the motive power and compressor are located within the same enclosure in such a way that a refrigerant shaft seal is not necessary.

(b) Required specifications. Pursuant to Limitation Order L-126, the following required specifications are hereby established for refrigeration condensing units:

(1) No producer shall:

- (i) Manufacture any refrigeration condensing units in sizes below 1/4 h.p.
- (ii) Manufacture any refrigeration condensing units up to and including 2 h.p., except in air-cooled condensing models. Provided, however, That water cooled condensing units below 3 h.p. may be produced for:

(a) Installations in which the condensing unit must operate in an ambient temperature of 110° F. or higher;

(b) Installations in which the condensing unit must operate within a substantially air-tight room or enclosure, such as a photographic or X-ray developing room;

(c) Installations in which the condensing unit is designed to operate at a refrigerant suction temperature below minus 40° F.

Note: Paragraph (b) (1) (ii) (c) amended June 17, 1943.

(d) Installations in which the condensing unit is to be installed aboard ship.

(iii) Manufacture any refrigeration condensing units above 3 h.p., except in water cooled and evaporatively cooled models.

(iv) Manufacture any duplex condensing units up to and including 20 h.p., except for multi-stage applications;

(v) Manufacture or assemble more types of basic compressor bodies than a number equal to one-half, or less, the total number of types (by horse power rating) of refrigeration condensing units being produced by him (excluding units completed under paragraph (c) (1) (ii)), except that a person producing only one type may continue to produce one basic compressor body.

(vi) Manufacture more than one refrigeration condensing unit model or more than one sealed type of refrigeration condensing unit in any given horse power rating for the suction temperature brackets of 5° F., 20° F., and 40° F., respectively, and for each of the following refrigerant classifications:

- (a) Ammonia
- (b) Carbon dioxide
- (c) Freon, methyl chloride, sulphur dioxide

Provided, That the restrictions of this subdivision (vi) shall not prohibit the production of both a 3 h.p. water cooled and a 3 h.p. air cooled refrigeration condensing unit; and Provided further, That the restrictions in this subdivision (vi) shall not apply to the manufacture of refrigeration condensing units designed for operation at suction temperature below minus 25° F.

(vii) Deliver any refrigeration condensing unit, or the belt-driven type, unless it includes a motor pulley and belt drive at the time of shipment.

(viii) Manufacture any refrigeration condensing unit in a h.p. rating not produced by him before May 1, 1942, nor manufacture any unit which is designed to use a refrigerant not used by him prior to May 1, 1942; or

(ix) Use any alloy steel, or more than thirty (30) pounds (net weight) of carbon steel, per horse power, in the base, exclusive of necessary bolts, washers, nuts, cotter pins, straps, pipe sleeves and adjustable motor rails, of any refrigeration condensing unit, as herein described,

or of any other types of condensing unit of either the open type or sealed type and whether intended for remote installation or not, employing a motor of 3 h.p. or smaller: Provided, That as much as twelve (12) pounds of carbon steel (net weight) may be used in the base of a unit of less than 1/2 h.p.

Where the same size base is used on more than one size of condensing unit (by horse power rating), the pounds of such metal permitted per horse power for the base may be calculated on the basis of the largest size of such unit for which the same size base is used. Where a condensing unit employs a motor rated by fractions of a horse power (whether less than, or more than 1 h.p.), the amount of carbon steel permitted for the base shall be proportionate to the fractional horse power of the motor employed. For example, the permissible weight of carbon steel for the base of a 1/2 h.p. air cooled condensing unit shall be fifteen (15) pounds.

The restrictions of this subdivision (ix) shall not apply to any base for use aboard ship, and shall not restrict the use of cast iron in any base.

(x) Use any metals in the construction of the base of any refrigeration condensing unit, as described in this Schedule II, or of any other types of condensing unit of either the open type or sealed type and whether intended for remote installation or not, employing a motor of more than twenty (20) h.p., except that ferrous metals may be used for necessary bolts, washers, nuts, cotter pins, straps, sole plates, pipe sleeves and adjustable motor rails: Provided, That the restrictions in the subdivision (x) shall not apply to any such condensing units of any types for use in aircraft by the Army or Navy of the United States, or for use aboard ship or at any advanced base by the Army or Navy of the United States, the Maritime Commission, or the War Shipping Administration.

(xi) Manufacture or assemble more types of basic compressor bodies, for other than the open type intended for remote installations, than permitted under paragraph (b) (1) (v) of this schedule.

(xii) Use any copper or copper base alloy pipe or tubing for interconnecting refrigerant lines larger than 3/4" size (O.D.), except for use aboard ship and at advanced bases by the Army or Navy of the United States, the Maritime Commission or the War Shipping Administration.

(c) Applicability of order. (1) The required specifications established by paragraph (b) hereof shall apply to all refrigeration condensing units: Provided, however, That the foregoing shall not prohibit:

(i) The production, fabrication, delivery, acceptance or installation of refrigeration condensing units, where (a) such units are manufactured in accordance with plans which have already (prior to July 3, 1942) been drawn and accepted by or for the account of the Army or Navy of the United States, the Maritime Commission, the War Shipping Administration, or Lend-Lease countries, or (b) such units are manufactured in accordance with the specifications issued prior to July 3, 1942, by any such agency or country (including performance specifications) requiring construction, design or materials not in accordance with the restrictions of this Schedule; but in any case such units may vary from the restrictions of this Schedule only to the extent required by such plans or specifications. As used in this subparagraph, the words "Army, Navy, Maritime Commission and War Shipping Administration" do not include any privately operated plant or shipyard financed by or controlled by any of such agencies or operated on a cost-plus-fixed-fee basis.

(ii) The delivery by a producer of any refrigeration condensing units (or the acceptance thereof) which were in his stock in finished form June 17, 1943, or which had on said date been cast, machined, or otherwise, processed in such manner that their manufacture in conformance with this schedule would be impractical.

(d) Effective date. This amendment shall become and be effective on and after April 6, 1943.

Issued this 17th day of June 1943.

War Production Board  
By J. Joseph Whelan,  
Recording Secretary.

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**'Written To Be Read on Arrival'**

Issued Every Monday  
at Detroit, Michigan

**JULY 5, 1943**

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Established 1926.

**Inside Dope**

By George F. Taubeneck

Two Republics  
Hooray for BSM  
Joke of the Month  
Lindsay Morrison  
Ensign Gauert  
Hidden Treasure  
Smith on Vacation  
Introducing Fred Smith  
Medical Refrigeration

**Two Republics**

Several ominous eyebrows lifted in Evansville a fortnight ago when the News arrived with its mention of the fact that Republic Aircraft, "makers of the P-47," planned to manufacture household refrigerators after the war.

Servel makes wings for the P-47, and the members of the Servel farm bloc thought they knew the Republic executives pretty well. "What goes on here?" Why weren't we informed about our new competition?"

Well, their investigation showed that there are two Republics in the airplane business—Republic Aviation, which makes the P-47 and Republic Aircraft of Detroit. It's the latter outfit which is interested in refrigerators.

Best way to solve the whole thing is to say that Aviation Corp., holding company for Republic Aircraft, Lycoming, American Central, and Consolidated-Vultee, is planning to build refrigerators after the war.

**Hooray for BSM**

There's a new alphabet group down in Washington which deserves your hearty support. It certainly has ours. It's a radical group of reformers, out to change our habits and customs. And God bless 'em.

Who and what? They're the BSM, which stands for the Brotherhood of Sensible Men. Their aim and purpose: to dress sensibly at work in the summer time. This they do by wearing slack suits to the office, or appearing without hat and tie, and with open collar.

That custom has been followed for years at our office, and we're here to testify it improves efficiency—and tempers!

**Joke of the Month**

And that leads us up to the Joke of the Month. As you might guess, it's about Washington.

Many of you have no doubt had the experience of trying to find a Washington administrator who has just moved. Last time you saw him he was in Tempo E. This time you are referred to Railroad Retirement, only to learn that he is now at Social Security. At Social Security they look through their files, shake their heads . . . and so it goes, while you perspire the day away on a vain treasure hunt.

Know why all this moving? Well, the way we heard it, there are 28 big divisions of the WPB and only 27 buildings, so one group must always be in transit.

**Lindsay Morrison**

One old friend you probably haven't heard from in a long time is genial Lindsay Morrison, who used to head up the Household Refrigeration Section of the Consumers Durable Goods Branch.

The reason you haven't heard from Lindsay is that during these last few months he has been busier than a Corsair pilot with six Jap Zeros on his tail. Lindsay is now in the Distribution Branch, and he's working on a new, simplified system for repair parts distribution.

(Concluded on Page 13, Column 1)

**"Let Independence Be Our Boast"**

—From *Hail, Columbia*

**The Pardon Came Too Late**

Letter to Chester Davis June 21

Gets Action June 25;

P. S.: He Resigned June 28

War Food Administration  
Washington  
Office of the Administrator

June 25, 1943

Editor:

On the day after you wrote me, an informal refrigeration meeting was held in our office. The meeting included Mr. Munce of the York Corp. and Mr. Fred Smith of the War Production Board, General Industrial Equipment Division. Plans were made to inaugurate immediately a nation wide survey of refrigeration problems, looking toward the quick development of an adequate program of essential maintenance and necessary expansion.

Our Office of Materials and Facilities is assembling an overall machinery program by food industry classifications but many important refrigeration problems may remain undisclosed unless the horizontal survey is made with full industry cooperation.

The War Production Board recognizes the latent danger in the situation and is extending its cooperation through the General Industrial Equipment Division. August 1 has been set as the day for the initial report of the Industry Committee under Mr. Munce. As a War Production Board consultant on refrigeration, you will be informed of our progress through the General Industrial Equipment Division.

CHESTER C. DAVIS, Administrator

**Re-built Parts For Commercial Units Under Price Control**

WASHINGTON, D. C.—A ceiling of 75% of the present list prices for new parts or subassemblies has been established by the Office of Price Administration for reconditioned or rebuilt parts of subassemblies for commercial refrigeration equipment when sold by reconditioners.

The action covers only rebuilt or reconditioned subassemblies and parts which were not sold by the manufacturer during March, 1942. Many manufacturers, OPA pointed out, will be compelled to recondition and rebuild certain part and subassemblies for their own refrigeration equipment because of the tightness in supply of new parts and subassemblies—production of which has been drastically curtailed under War Production Board Limitation orders.

The new ceilings will be under the provisions of the General Maximum Price Regulation. A survey of sales was made by OPA of reconditioned parts and subassemblies of several of the large refrigeration equipment manufacturers who during March, 1942, reconditioned and rebuilt parts of their equipment. Results showed that about 85% were sold on the basis of 75% or lower of the list price of an equivalent new part or subassembly.

Reconditioned parts or subassemblies sold by manufacturers during March, 1942, were sold at an average of 75% of the list price of an equivalent new part or subassembly.

**Breakdowns In Food Preserving Services Pile Up****FOOD POISONING CASES REPORTED****Chicago Icemen 'Frozen' In Their Jobs; Why Not Ref. Servicemen?**

DETROIT — Evidence was piling up on all sides last week to the effect that refrigeration facilities in the United States were strained to the point where food spoilage losses were assuming the proportions of a national scandal, city officials were being besieged by the protests of their constituents, and actual cases of food poisoning began to hit the public prints.

In Canton, Ohio several high-ranking officials became violently ill from food poisoning. The Canton City Health Commissioner, upon investigation, declared that the poisoning was caused by "lack of refrigeration." (See story on page 10).

Representatives of service engineers' groups in Cleveland and Baltimore reported that because of the drain on manpower it was not possible for them to keep the food-preserving equipment in their communities in operation, and the Cleveland group sent a telegram to President Roosevelt asking him to suspend induction of refrigeration servicemen. (See story, page 9.)

More food spoilage shipments, including a reported spoilage of 210,000 pounds of meat in San Francisco, are reported from various points around the country, the cause apparently being the failure to provide proper icing facilities of refrigerated carriers. (See stories, page 8).

And the boast of the ice industry that it might take up any slack that was caused by "breakdown" of mechanical refrigeration equipment during the War Emergency was rapidly being smashed down, as reports piled in from all parts of the country of a breakdown of ice refrigeration service. (See stories, pages 8 and 10).

In Baltimore the situation was so bad that city officials were preparing to take drastic measures to relieve it, and in some southern cities "ice rationing" on a voluntary basis was instituted.

In Chicago the ice industry yelped for help so loudly that they got an order that froze 3,000 employees of the retail ice industry in their jobs—prohibiting them from taking jobs in other industries at higher pay.

That such an order for the mechanical refrigeration service field is an absolute necessity is obvious to everyone familiar with the situation, but apparently the mechanical

**Norge To Build Parts For Helicopter**

DETROIT—Another milestone toward Detroit's growth as a postwar center of aircraft production has been marked in the announcement that one of the Norge Division of Borg-Warner Corp. plants here has begun manufacture of important parts for Igor Sikorsky's helicopter. The announcement was made by Howard E. Blood, president of the division.

The Norge subsidiary began production on the parts soon after Rear Admiral Howard L. Vickery of the Maritime Commission disclosed that

(Concluded on Page 24, Column 1)



## Cork Stocks at Peak, So Greater Part Of Supply May Go For Civilian Use

WASHINGTON.—A long range cork program was announced last week by the Cork, Asbestos & Fibrous Glass Division of the War Production Board.

Officials stated that in view of the fact that over-all cork stocks in this country are at an all-time peak and since potential supplies are available in Portugal, Spain, and North Africa, it was felt that attention should now be given to reducing the government-owned stockpile of cork.

Sales of government-owned cork will be made shortly to industry and over a period of the next year further sales will be made, reducing the government cork stockpile to approximately two-thirds of its present size. It was further stated that the balance, after such sales, would constitute a minimum reserve to be retained for the duration of the war or until all uncertainties regarding imports are removed.

As over-all cork stocks have grown, Division officials stated, restrictions on the use of cork have been gradually removed until industry is now operating on a practically unrestricted basis except for a rather liberal allocation procedure. Also, industry's reporting forms have been greatly simplified.

Officials said that industry could expect to continue to operate on this basis as long as it carries at all times an amount of cork equal to the minimum which the government carries. Thus the recommended mini-

mum over-all cork stocks will be carried by government and industry on a 50-50 basis. Each cork manufacturer using raw cork will be expected to carry his proportionate share of the minimum required stocks.

Industry and government have worked hand in hand to build up a large cork stockpile over the past two years, it was stated, and now, unless conditions change radically, industry may expect to use all that it may import, plus additional amounts now owned by itself and government which are over and above the required minimum to be retained at all times by government and industry jointly.

## Relax Restrictions On Built-In Motors

WASHINGTON, D. C.—By amendment to General Conservation Order L-221, the War Production Board provides a somewhat simpler procedure in the purchase of machinery with specially installed motors or generators, officials announce.

Effective June 18, 1943, purchasers of machinery, into which is incorporated a special electric motor or generator, need no longer file a certification setting forth the use and purpose of the motor or generator, WPB states.

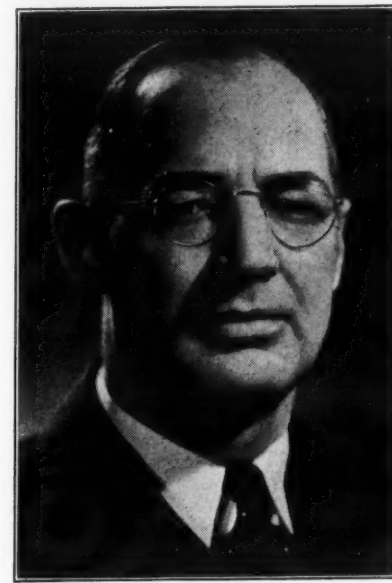
## York Corp. as Name For Manufacturer Finally Approved

YORK, Pa.—The York Ice Machinery Corp. has announced the company will be known as the "York Corp." as a result of final court approval on a plan of merger and recapitalization.

The change in name resulted from a merger with a subsidiary, the York Corp. The merger, first proposed in 1941, was upheld in June, 1942 by the U. S. District Court but was subsequently appealed to the U. S. Circuit Court of Appeals by an intervening stockholder. Final decision upholding the merger was handed down on June 15, 1943 by the Circuit Court in Philadelphia. Aside from the change in name and capital structure, the merger affects in no way the company's operations.

York Corp. is now devoting its entire production of its commercial refrigerating and air conditioning equipment to the war effort, with the exception of a small percentage of repair parts for the maintenance of essential civilian installations, according to S. E. Lauer, president. Eighty-two per cent of the orders booked during the first half of the company's fiscal year were for mechanical cooling. The remaining 18% comprised war material for marine, ordnance and other products extraneous to mechanical cooling.

## Looks To Postwar



PAUL H. PUFFER

## Puffer Heads Norge Postwar Planning

DETROIT—In preparation for immediate conversion to peacetime production of household appliances as soon as war production conditions permit it, Paul H. Puffer, formerly general sales manager of Norge division of Borg-Warner Corp., has been appointed to direct postwar planning for Norge appliances, it was announced last week by Howard E. Blood, president of the company.

Group meetings of company executives will be held at regular intervals to discuss postwar plans for improvements of products as well as aggressive development of domestic and foreign markets, Mr. Blood said. The company's main plant in Muskegon, Mich. can be quickly reconverted to peacetime production, Mr. Blood added.

"Production will be just a question of getting materials," he said.

Mr. Blood is chairman of the Postwar Distribution Planning Committee of the National Association of Manufacturers.

## Philadelphia Drive Seeks to 'Smoke Out' Old Units for Parts

PHILADELPHIA—The Electrical Association of Philadelphia is sponsoring a summer program which will go into effect from June 15 to Sept. 1, to aid service dealers in obtaining more of the scarce but essential appliance parts needed in repair work.

Under the supervision of John A. Morrison, managing director of the Association, the plan aims to make old and worn-out appliances which many consumers have stored away in their attics, basements and spare rooms, available to service dealers by direct purchase from the public. Many of these old units will yield valuable parts when checked over carefully, Mr. Morrison points out.

Dealers wishing to participate may join the project for a total sum of \$5. For that fee, all advertising necessary for promotion of the plan will be supplied by the Association. A 1,000 line ad will be run in the "Philadelphia Bulletin," "Inquirer," "Record," and "Daily News" with the names of the participating dealers, stating that the dealers listed will purchase old and worn-out appliances at 10 cents per pound.

A 16 inch and a 12 inch ad will be run for each dealer, in any Philadelphia neighborhood or suburban newspaper of his own selection. If some dealers wish to buy only certain appliances, a special series of ads will be used, listing the specific appliances called for. Banners for store windows and store and counter cards will be provided.

Parts of appliances not usable by service dealers will be turned over to the government as scrap metal.

The program is designed to cover three points:

1. Provide dealers with necessary appliance parts so that they may continue their repair work,
2. Continue to keep up civilian morale through keeping appliances in working order,
3. Take part in the war effort by contributing to the metal scrap drive.

## It's Time to Tell About Refrigeration's "Hidden Services"

### ...take Life-Saving BLOOD PLASMA, for instance...

A leading physician of the American Medical Association, said recently, "Our vast program for procurement and distribution of Blood Plasma as a life saving measure for our armed forces is dependent on REFRIGERATION."

Donated Blood would deteriorate and become useless, were it not for Cold Storage Cabinets at Blood Donor Centers, Refrigerated Shipping Containers which carry it—within 24 hours—to processing laboratories. Then Refrigerated Blood Coolers, Blood Banks, Plasma Storage cabinets protect the life-giving Plasma until processed for emergency use, at Army and Naval Hospitals, on shipboard and at Army field medical units overseas.

In this "Hidden" service of modern Refrigeration, as in all other phases, A-P REFRIGERANT VALVES provide steady, accurate and DEPENDABLE control.

To help protect the life and health of thousands, at a time when mechanical breakdowns or inefficiencies could be disastrous.

Because of this A-P record for DEPENDABILITY in Controls, leading engineers and designers of Refrigeration and Air Conditioning Equipment—for post-war markets—are already sending intricate new-control problems to A-P. We invite your inquiry, and assure you designing and engineering assistance that you can use to profit.

**AUTOMATIC PRODUCTS COMPANY**  
2450 NORTH THIRTY-SECOND STREET  
MILWAUKEE 10 WISCONSIN  
Export Dept. 100 Varick St. New York City



## 'Investigator' Calls First, Saves Time on Air Cooling Repairs

MONTGOMERY, Ala.—Whenever a call for any type of repair or start-up service work comes into the office of the Charles D. Bailey Co., heating and air conditioning firm here now specializing in repair work, an "investigator" is sent out before the serviceman comes. This simple idea has saved as much as 10 hours a week in wasted time, and helped the company immeasurably to keep up with its request volume.

"We have had many instances in which a customer called for repairs, and when the man arrived, he found that simply resetting a switch or valve was all that was needed," Charles Bailey, manager, said. "And of course his trip was wasted. We could scarcely charge for work of this kind."

"In other instances, customers would tell us that one part of the compressor or system was out of order, and the serviceman would bring tools for that work only to find that something else was at fault. Most of the time we had rearranged the day's work schedule to include these calls, and the result was a complete loss of time."

Now, whenever a call comes in for any service of any kind, Mr. Bailey simply dispatches one of his four men—whose time is carefully budgeted to allow this—to inspect the job swiftly, and relay the information back to the office—including tools, repair parts needed, about how long it will take, etc. After inspecting all calls for that day, he rejoins the crew or is assigned to other work, on schedule. This is a convenient means of giving hard-worked men a rest from struggling with repairs, and at the same time means that no Bailey serviceman leaves with the wrong tools or a cloudy idea of what he will meet up with. Every job is handled more swiftly—and there's no loss in tires, gasoline or goodwill.

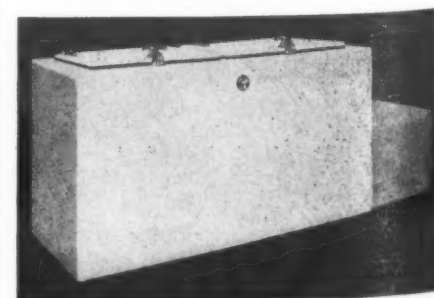
## Continental FARM LOCKER PLANT

## SAVES FOOD by Freezing!

Summer's harvest of fresh vegetables, fruits, berries will lend healthful variety to winter meals, when the farmer of the future gets his CONTINENTAL FARM LOCKER PLANT. He'll FREEZE and save in FROZEN STORAGE all his surplus foods, meats, poultry and game—right in his own home! Write for Continental Farm Locker Plant War Purchase information.

**SANITARY REFRIGERATOR CO.**  
Fond du Lac, Wisconsin

Model illustrated is C-1243. Capacity 12.5 net cu. ft. Holds up to 600 lbs. of frozen food.



**FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS**

...and FARM LOCKER PLANTS after the WAR



# Demand for FRIGIDAIRE Wartime Suggestions booklet passes the 5 million mark!

Save food, flavor, money too!

## FRIGIDAIRE

gives these timely suggestions to  
help you fight food waste

Before the war only your pocketbook suffered if you tossed away a withered vegetable, a dry chop, or a dab of leftover cooked food. But now food waste also hurts the nation's war effort and robs the family table!

No one wastes food deliberately. But losses do occur! Sometimes through improper food storage. Or failure to use every drop and crumb. Knowing the best ways to use your refrigerator helps you minimize waste, save precious points. Check the food-saving ideas on this page. You're an unusual woman if you know them all!



**Fresh Meat.** If not to be frozen, keeps best in meat or defrosting tray. Cover lightly with waxed paper. Leave ends open for free air circulation. Do not cut or chop meat until cooking time—keeps better in the piece. Wrap and freeze ground and variety meats if not to be used day of purchase.



**Soft Fruits and Berries** should be sorted, spread out on shallow pan or plate, and refrigerated. To guard against mold, do not cover. Handle carefully, any break in skin helps hasten spoilage. As a further precaution against mold, never wash berries until just before using.



For Excellence  
in War Production

**FRIGIDAIRE Division of GENERAL MOTORS**  
Peacetime Builders of Home Appliances, Commercial Refrigeration, Air Conditioners

Buy War Bonds for Victory



**SAVE** ends of cheese near rind. Grate and store in covered jars for use in casserole dishes.



**SAVE** fat drippings for home use or fat salvage. Refrigerate bacon grease or drippings.



**SAVE** the vitamin values of leftover vegetables by using them uncooked in salads.



**SAVE** uncooked egg whites in tightly covered jar for use in meringues, frostings, etc.



**SAVE** unused vegetable juices for soups, etc.—fruit juices and syrups for desserts, drinks.



**SAVE** the good in leftover cooked meat by storing in a covered dish. Prevents drying.



**Eggs** left at room temperature for 3 days lose as much freshness as in 2 months in refrigerator! Never wash eggs before storing. It destroys a protective film that guards against bacteria. Cool milk and egg dishes like custards in pan of ice water, then cover and refrigerate until serving time.



**Milk** should never be left in sunlight or at room temperature. Refrigerate immediately, continuously. Never pour milk or cream back in bottle. CHEESE should be wrapped in waxed paper to prevent drying. Keep soft types covered, use promptly. BUTTER needs tight cover to protect flavor.



**Melons**, when ripe, need refrigeration. Until then, keep them dry to prevent mold—at room temperature to improve taste and texture. Handle gently to avoid bruises. When chilling, cover cut ends with waxed paper. Wrap cantaloupes well to guard other foods from strong odors.

**FREE! Get WARTIME SUGGESTIONS from your Frigidaire Dealer**

This valuable 36-page booklet tells many other ways to combat food waste, gives many timely tips on refrigerator care. Get your free copy now. Look for your Dealer's Frigidaire sign or find his address under "Refrigerators" in Classified Telephone Directory. Or write Frigidaire, 386 Taylor St., Dayton, Ohio.

FRIGIDAIRE REFRIGERATORS

When you need refrigerator help, call an approved Frigidaire Service Dealer listed under "Refrigerators" in your classified telephone directory.

PRODUCTS OF GENERAL MOTORS  
"FOR SERVICE CALL"

Next Month: "Quick'n Easy Meals"



"Public anxious for this kind of information"

"600 requests from one radio announcement"

"Entire supply of booklets exhausted in two days"

"Gave away 1300 booklets Saturday"

"Building more genuine customer appreciation than anything we have had in 18 years"

THESE typical field reports give you an idea of the extraordinary dealer and public interest in the Frigidaire campaign. The entire program is a tremendous success!

Dealers are enthusiastic as they witness public reaction to national advertising and local promotions built around the WARTIME SUGGESTIONS Booklet. All types of dealers from all parts of the country are writing in to tell how they are capitalizing on this real opportunity to build good will in their communities by rendering a genuinely helpful service to present and potential customers.

To date public and dealer demands for WARTIME SUGGESTIONS Booklets have exceeded 5 million copies, and this figure is steadily growing as an ever increasing number of dealer activities get under way.

Here's a campaign that speaks the dealer's language

... for it talks about refrigeration—the dealer's business. The above ad, 5th in a series, will appear in full color during July and August in Life, Ladies' Home Journal, Woman's Home Com-

panion, Good Housekeeping, and McCall's, and in 2 colors in Better Homes & Gardens, American Home, True Story, and Farm Journal and Farmer's Wife.



## FRIGIDAIRE Division of GENERAL MOTORS

Peacetime builders of Home Appliances, Commercial Refrigeration, Air Conditioners



## Heads Refrigeration Engineering For Alco



GEORGE E. ROEPKE

ST. LOUIS—George E. Roepke of the Alco Valve Co. has been appointed engineer in charge of refrigeration for the firm, the company has announced.

Roepke was sales engineer in charge of the St. Louis district for a number of years and, at the beginning of the war, was called in to take charge of sub-contracting work.

He is a graduate of Missouri University and, at present, is vice-chairman of the St. Louis A.S.R.E.

## Plea For 'Freon' Cylinders Again Sounded; 6-Point Program To Conserve Outlined

DETROIT—War Production Board officials are joining with manufacturers to sound once again the oft-repeated, but now-more-important-than-ever plea to return refrigerant cylinders.

The plea is now more important than ever, it is pointed out, because restrictions have already been imposed on the use of "Freon-12."

Production rate of "Freon-12" is partially governed by the rate of empty cylinder returns, this being more important than ever now because materials can't be procured for the manufacture of new containers.

Figures in the hands of the producers of "Freon-12" show that only about 70% of the cylinders are currently returned, and this in itself means that the production rate is cut by close to the 30% mark.

Government requirements have made large demands upon the "Freon-12" supply. Not only have these demands been for refrigeration and air conditioning use, but also for a use in the new insecticide spray bomb for the control of malaria, called the No. 1 enemy to the health of the American soldier in this war.

The spray bomb is composed of sesame oil and pyrethrum, which is vaporized with "Freon-12" gas pressure. The contents come in a pressure container, each holding about one pound, with spray outlets which can be controlled by the user.

The high pressure of the "Freon-12" gas employed saturates the air

in a tent, hut or dugout with quick mosquito-killing sesame oil and pyrethrum. The Surgeon General's office states that only four seconds of spraying are required for a confined space of about 1,000 feet, 10 seconds for a pyramidal tent, and three seconds for a pup tent. The insecticide ingredients in the bomb kills all mosquitos and other flying insects which may be in the area.

Reason for its selection is that in addition to being non-toxic and non-explosive, "Freon-12" has ideal pressure characteristics for use in the spray bomb without necessitating a large amount of critical metal.

Conservation of "Freon-12" being termed particularly important at this time, Frigidaire division of General Motors Corp. has recently recommended six major points to be followed in such a conservation program:

1. Make a complete leak test a part of every service call.
2. When a shortage of refrigerant is indicated in a system, be sure that every leak is found and repaired before refrigerant is added.
3. Do not add more than the minimum requirements.
4. Discontinue the practice of blowing out evaporators, lines, etc. with refrigerant. Use a vacuum pump or other suitable means.
5. Do not use refrigerant to clean exterior of cross-fin condensers—use a brush or air pump.
6. Exercise care in purging air from condenser.

## U.S. Agency Warns 'Freon' Users To Conserve Supply

WASHINGTON, D. C.—The shortage of Freon refrigerant for air conditioning purposes makes it imperative that theaters, office buildings, hotels, restaurants, and other service institutions equipped with comfort cooling systems take immediate steps to conserve their present supply of the refrigerant, the Service Equipment Division of the War Production Board has advised.

A recent amendment to Order M-28 (Chlorinated Hydrocarbon Refrigerants) barred the delivery of Freon refrigerant to any comfort cooling system after June 5. The action was taken to conserve the chemical for essential war industries and for preservation of perishable foods.

This does not mean imminent shut-down of currently operating cooling systems, Division officials pointed out. With proper care and maintenance of existing equipment, the refrigerant can be used for several years without deterioration.

However, to assure continued operation of the equipment, a complete check and necessary repairs should be made without further delay as a precaution against leakage or loss of the refrigerant, officials emphasized. Once present charges of the refrigerant are lost, there will be no possibility of replacing them under present restrictions, it was pointed out. This in effect will force abandonment of the air conditioning system until Freon once more becomes available.

Where emergency repairs are necessary, repair and maintenance parts may be obtained through ratings assigned under Controlled Materials Plan Regulation No. 5.

The ban on refrigerants applies only to Freon and does not affect deliveries of carbon dioxide or any other type of refrigerant used in comfort cooling systems.

## T. J. Newcomb Says Public Is Deluded On Postwar Products

NEW YORK CITY—T. J. Newcomb, sales manager of the Westinghouse Electric Appliance division, in addressing a group of newspaper and magazine writers here recently warned the American public not to expect "fantastic, radical, war-borne dream products to become actual realities in the immediate post-war period."

Newcomb's convictions are that "out of this war will be born many new conceptions of electric appliances," but he believes that it will take several years after the war ends to develop the products which are now being given a fancy build-up in the minds of future purchasers by "crystal-gazers" whose authority for prophesying he classifies along with "curbstone war strategists."

Westinghouse will return to pre-war production methods immediately at the close of the war, Newcomb stated, "not only to serve a pent-up demand but, equally important, to maintain high employment," and he indicated that the post-war appliances will show some minor improvements at that time. As developments advance, Newcomb said that refrigerators will have to meet the requirements of the frozen food industry, and that electric ranges, washers and ironers will eventually be greatly improved.

J. H. Ashbaugh, manager of the Westinghouse Electric Appliance division, said that while immediate post-war living will not be much different from the period just previous to the war, "we will see in the next 10 years probably the greatest advancement in healthful and comfortable living we have ever seen, but I believe it will be a step-by-step process."

On exhibit at the meeting was the appliance division's war-time line. The exhibit substituted for the annual display of appliances.

## Restrictions Removed On Copper Radio Parts

WASHINGTON, D. C.—The use of copper in the manufacture of radio parts and sets for private use, when manufacture is allowed under Limitation Order L-265, has been approved by the WLB through an amendment to Conservation Order M-9-c. Such use of copper previously had been forbidden, even for the production of repair parts.

## REFRIGERATION TYPE ELECTRIC MOTORS

A Stock of New and Rebuilt Motors for Sale

WELL KNOWN MAKES SUCH AS

General Electric—Wagner

Delco—Century—Westinghouse

1/6, 1/5, 1/4, 1/3, 1/2, 3/4, 1, 1 1/2, 2, 3

Horsepowers. AC, 110, 220, 440 Volts.

DC, 32, 115, 230 Volts. Various speeds.

We advise you to take advantage of this offer while they last. Let us know of your electric motor problems. Wire or write.

P. J. QUINN'S SONS ELECTRIC MOTOR COMPANY

46-15 Vernon Blvd., L. I. City, N. Y.

## WOLVERINE REFRIGERATION TUBE



WOLVERINE TUBE DIVISION OF CALUMET AND HECLA CONSOLIDATED COPPER COMPANY 1413 Central Ave. • Detroit, Michigan

## PANEL TYPE UNIT COOLERS

Solve Many Coil Space Problems

KRAMER TRENTON & Co. Heat Transfer Products TRENTON, N. J.

# FAMOUS LIFE LINES



1 GUADALCANAL, important link in our South Pacific life line, is now consolidated into one of our most important island bases. Here a newly arrived detail of American troops is landing while a Flying Fortress gives protection overhead.



2 AMERICAN TRUCKS with "life lines" by Bundy, followed our first troops ashore on Guadalcanal—landed by "crocodiles" also with Bundy "life lines." More than forty types of American military vehicles have an average of over twenty Bundy Tubing parts.

GUADALCANAL was more than a glorious victory for U. S. fighting men. It was a triumph of transport.

Against incredible odds of distance and terrain, the long life line was kept open. Men, supplies, trucks and planes were delivered at the front.

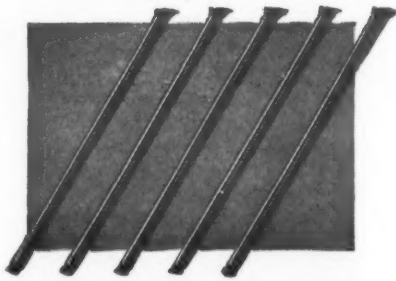
It is our job, here at Bundy, to produce mile on mile of metal tubing which plays an important part in keeping Uncle Sam's ships moving, aircraft flying, ground vehicles rolling.

Wherever pressure lines are

needed for fuel, lubrication or refrigerants—wherever hydraulic brakes are used—wherever vacuums must be transmitted—there is work for Bundy Tubing.

At present, these Bundy "life lines" are used for more than 5,000 different mechanical and structural parts in the vehicles and equipment of our fighting forces. And the list is growing steadily.

Whatever the future needs of our armed services may be, we shall do our utmost to meet them with quality and quantity. Bundy Tubing Company, Detroit, Michigan.



THESE MOTOR TRUCK PUSH RODS, made from Bundy Tubing, are holding up under strenuous service in thousands of U. S. military vehicles in every part of the world. Bundy Tubing was selected because of its light weight, strength and resistance to vibration fatigue.

Buy U. S. War Bonds Get in Your Scrap

## BUNDY TUBING



ENGINEERED TO YOUR EXPECTATIONS



BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including 3" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.



BUNDY ELECTRICWELD steel tubing. Single-walled—butt welded—annealed. Available in sizes up to and including 2" O. D. Can be furnished tin-coated outside in smaller sizes.



BUNDY "TRIPLE-PURPOSE" tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel; all steel; Monel inside—steel outside; Monel outside—steel inside. Sizes up to and including 3/4" O. D.



# This is OUR Shangri-La



**B**UT, like the U.S.S. Hornet, from which General Doolittle and his fellow heroes bombed Tokio, it is no fiction. Our "Shangri-La" is a fact deadly to Axis hopes.

*For these are the war plants of Nash-Kelvinator!*

This is where they come from. Those 2,000 h. p. Pratt & Whitney engines that lift the Navy's mighty Vought *Corsair* fighters seven miles high... that speed them seven miles a minute... higher, faster, better than the best the Japs have got.

From here come great, precision-

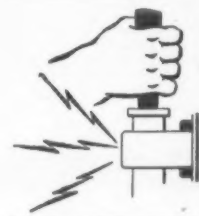
built Hamilton Standard Constant Speed Propellers for Flying Fortress, Lancaster and Mosquito bombers now blasting Hitler's industries and his vision of victory.

And soon from these plants will come the versatile Sikorsky helicopter which we will build in quantity for the Army Air Forces.

No enemy eyes will ever see this group of buildings. Nor, friendly as they are, may yours. For Nash-Kelvinator's factories are strategically distributed throughout the country and are here brought together in one

place by the imagination of an artist to visualize for you the magnitude of Nash-Kelvinator's facilities.

When Victory is won there will come from this Shangri-La of industry, with its vast facilities and skills increased by our war work, a finer Kelvinator than ever before. And a sales and profit opportunity that will continue to be the best in the industry!

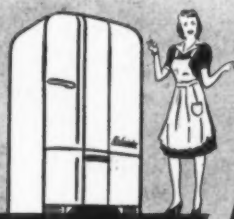


#### SCRAP IS POWER

*Cooperate With Your Industry!  
Salvage All Inoperative Parts  
Containing Critical Materials...  
Put Vitrally-Needed Scrap Back  
Into the Scrap TODAY!*

[THEY GIVE THEIR LIVES, WE LEND OUR MONEY—BUY MORE WAR SAVINGS BONDS AND STAMPS!]

**Look Ahead With**



**KELVINATOR**

DIVISION OF NASH-KELVINATOR CORPORATION  
DETROIT • KENOSHA • MILWAUKEE • GRAND RAPIDS • LANSING



## The Priorities Quiz

(AIR CONDITIONING & REFRIGERATION NEWS, with the aid of a man who is actually engaged in handling much priorities work, will attempt to answer questions from readers about priorities problems. The editors will not guarantee to answer all questions, nor can they guarantee that the answers will be legally perfect, but an effort will be made to provide a guide to correct procedure wherever possible.)

### P-126 Revoked For Canada, Pattern Remains

Q. One of our Canadian customers tells us that P-126, the Refrigeration Repair Order has been revoked for Canada. Is this true and, if so, how will jobbers and service men be able to order repair parts for commercial refrigeration from United States manufacturers in view of L-38 which insists on preference ratings of AA-5 or better for the delivery of such equipment?

A. It is true that P-126 has been revoked for Canada. The Priorities branch of the Department of Munitions and Supply at Ottawa, Canada, has adopted what is known as the "Program Classification System" which is an internal system for Canada only. The distribution of goods within Canada will be controlled through program numbers rather than priorities.

The purchase and importation of goods by Canadian manufacturers and jobbers, however, will still be carried on by priorities, for example, the refrigeration equipment a Canadian jobber sells under the appropriate program classification for re-

frigeration repair equipment may be replaced in his stock by a direct purchase from a United States manufacturer on a preference rating provided for that purpose under the schedules of a regulation known as "Order No. P. O. 5" which is in operation quite similar to our CMP Regulation No. 5.

In other words, the conditions of L-38 requiring ratings for the sale of commercial refrigeration repair parts can still be met by your Canadian customers. It is suggested that you write the department of Munitions and Supply, Priorities Branch, Ottawa, Canada, or Windsor and ask for a copy of Order No. P. O. 4 and P. O. 5.

### To Keep Up-to-Date On CMP Procedure

Q. Do you have any information regarding government periodicals which might bring us to date on the new CMP procedures? There have been so many revisions that it is difficult to follow the text of the regulations and be sure that we have caught all of the changes.

A. There is a new publication

which you will find a very helpful guide in current CMP procedure which may be obtained without charge either from your local WPB field office or by writing to the Education and Inquiry Branch, CMP division, 3327 Railroad Retirement Bldg., Washington, D. C. The publication is entitled, "Handy Guide and Outline of Procedure for Manufacturers Under the Controlled Materials Plan." This guide is in an outline form and is cross-indexed for ready reference to the text of the regulations.

### Classifying of Valves In the CMP Listings

Q. In the revised Class B product list, the item "valves, (exc. steel)" makes an exception of refrigeration and air conditioning valves. Does this mean that refrigeration and air conditioning valves are now a Class "A" product under CMP?

A. No. Refrigeration and air conditioning valves are still a Class B product but are classified on the revised Class B product list as "refrigeration and air conditioning equipment." The purpose for having made this distinction is that applications for controlled materials (Copper, Steel, Aluminum) are routed when received in Washington according to the classification shown. One application is required for each listing on the Class B product list. The WPB group handling valve applications does not handle refrigeration and air conditioning equipment. Thus, a distinction is made on the list, assuring that applications for refrigeration and air conditioning

valves will not be improperly routed and that there will be no delay in the proper handling of such applications.

### Priorities Amendment Affects CMP No. 5

Q. A recent revision of Priorities Regulation No. 3 mentions that a certain list of materials may not be purchased on ratings assigned for maintenance, repair and operating supplies. Does this have any effect upon CMP Regulation No. 5 which gives ratings to most businesses for their repair, maintenance, and operating supplies?

A. Yes. In an amendment to Priorities Regulation No. 3 dated June 4, three lists of items were added. List "A" covers items which, because they are plentiful, do not need to be controlled by the assigning of preference ratings for their delivery. Therefore, no person is permitted to extend any rating for the delivery of such an item.

List "B" covers items which are under some specific Limitation or Materials order and are specially controlled. The use of ratings made available for maintenance, repair and operating supplies, therefore, is denied in the purchase of these items.

List "C" covers items to which specific ratings have been assigned by "L," "M," or "P" orders. Only the ratings assigned by those specific orders may be used in the purchase of such items. These restrictions do apply to ratings assigned under any of the CMP Regulations. In fact, the revision to Priorities Regulation No. 3 specifically states with reference to the List "B" items (to which MRO ratings do not apply) that "items on List 'B' are not subject to preference ratings assigned by any regulation including CMP Regulation No. 5 and CMP Regulation No. 5A." Priorities Regulation No. 3 has assumed a new importance, therefore, and should be watched very closely in the purchase of all materials even when one is using CMP ratings and symbols.

### On Placing Orders Ahead of Ratings

Q. We have not seen any information recently regarding the placing of orders for component parts in advance of the receipt of preference ratings. Is there still any purpose served in placing orders with manufacturers in advance of the receipt of authorizations?

A. The only purpose that might be served in placing orders in advance of the receipt of the allotments or of preference ratings might be to indicate to a manufacturer that he will be expected to furnish such equipment when ratings are extended to him. Unless orders are actually certified with ratings or allotment symbols when they are placed, there is little that can be done about the actual requirement. Such an order cannot be entered in a production schedule unless it should be that a preference rating is not required for that particular part.

A number of concerns make it a practice to place orders without ratings but with the statement on the order that ratings will follow. There is really no advantage gained through placing an order in this manner. To avoid delays in the handling of your requirements, it is still the best policy to be sure that

your order leaves your place of business with a preference rating or the allotment symbol, or both, properly indicated and certified and that all of the end use information available to you has been indicated. Placing an order without all of this information on it merely results in having your order set aside by your supplier until such time as you are able to certify the ratings to him.

## Priority Ratings Are Not Applied To Many Items

WASHINGTON, D. C.—Preference ratings applied to orders for items specified in the amended Priorities Regulation No. 3, which were not filed by June 4, 1943, must be cancelled if they are not in conformity with restrictions imposed on that date, the WPB has announced.

The groups of items are specified in lists A, B, and C of Priorities Regulation No. 3, as amended June 4, 1943. The lists specify the products to which the various restrictions are applicable.

Ratings applied or extended to any outstanding orders for items appearing on Lists A, B, and C which are in violation of the restrictions must be cancelled, according to Interpretation No. 2 of that Regulation, if the orders are not filed by June 4.

Preference ratings have no effect on items appearing on List A of Priorities Regulation No. 3. WPB desires to maintain a free market for such items. List B items may not be obtained with preference ratings assigned for maintenance, repair, and operating supplies. The only preference ratings which may be used to purchase List C items are those assigned by the orders specified following the various items.

What this means in effect is that Priorities Regulation No. 3 established a uniform method of applying and extending preference ratings. Restrictions on the use of ratings with respect to specific items have been written into the Regulation by the June 4 amendment to maintain free distribution of some items, to restrict rated purchases of some items to the production material area, and to prevent use of CMP ratings for the purchase of others.

### 'Downrating' In Some Cases Not Compulsory

WASHINGTON, D. C.—A preference rating assigned with an advance allotment of controlled materials used on orders placed prior to May 16 does not have to be changed even though a rating assigned with the third quarter allotment may be lower.

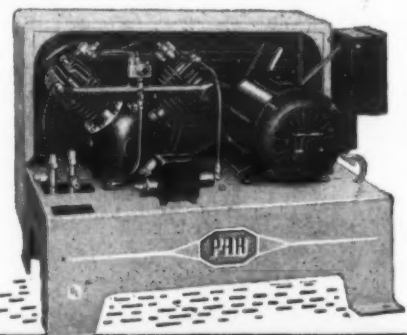
Direction No. 14 to CMP Regulation No. 1, issued June 15 by the WPB, rules that downrating in such cases is not compulsory. This ruling is similar to the one eliminating the downrating requirement in connection with maintenance, repair and operating supplies orders placed prior to May 16, which were downrated by the May 14 amendment to CMP Regulation No. 5.



**New Horizons** Look for a moment at the market of tomorrow. You'll see an America with a broad background of war production experience . . . people in every walk of life mechanically minded . . . prospects who appreciate, as never before, the value of fine equipment. When the day of peace comes we will be equipped . . . through the valuable lessons learned at war assignments, and the broad background of our past experience . . . to produce PAR Condensing Units which will continue to be outstanding in their fields.

Manufacturers of  
PAR Commercial Refrigeration Equipment

**PAR**  
DIVISION



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## MEN WANTED

Men experienced in installation and service work who are capable from experience to do technical work in a refrigeration engineering department of a large and well established refrigeration company.

- 1 Men for building models and testing low pressure condensing units and systems. Experience in welding and sheet metal work will be valuable.
- 2 Men for laboratory work running Calorimeter tests, construction tests and quality tests on refrigeration units.

Finest working conditions. Excellent opportunity for the right men. Permanent position with worlds of opportunity after Victory. Give complete experience and salary required in first letter. All correspondence will be held confidential. Write Box 1449, Air Conditioning & Refrigeration News.



## More Readers Express Feelings on Issue Of 'Big Business or Small Business'

### Why 'Big Business' Needs Small Business

American Business  
4660 Ravenswood Ave.  
Chicago, Ill.

Editor:

That was a perfectly swell shot you took at Ted Quinn and his book. Small business, like big business, may have made its errors in the past, but the small business of tomorrow is not going to be the same as it always was.

Manufacturing will become a sorry business if all the retailing is handled by the giants—the manufacturer will just take dictation from the merchants and have darn little profit left.

One thing that holds back small business is the failure of wholesalers, as a class, to streamline their operation and to give them merchandise which is as new, as fresh, and inexpensive as that of the chains. This does not mean a competition as to who can sell the cheapest, but a competition as to who can move merchandise in economic quantities, and this cannot be done with some of the merchandise the wholesalers insist on pushing. This will be changed after the war, I think.

I believe all editors ought to hit this matter of the large and small business hard, especially to promote the idea that big business NEEDS small business, just as small business needs big business. There are jobs a-plenty for both.

I am especially glad to see you at work on this idea in your characteristic hard-hitting fashion.

Eugene Whitmore, Editor

### Interest Is Stirred In Ted Quinn's Book

Central Vermont Public Service Corp.  
121 West St.  
Rutland, Vt.

Editor:

I was very much interested in reading your comment on the book that has recently been written by Ted Quinn. I can't recall having seen in any of the publications that I read, that Mr. Quinn had written a book, but your comment has me interested enough to ask you where I can purchase a copy.

If you will kindly give me this information, I would appreciate it very much.

A. H. Allcott,  
Sales Manager

Johnson & Johnson Co.  
209 S. Fourth Ave.  
Ann Arbor, Mich.

Editor:

In one of your recent issues of the REFRIGERATION NEWS, I read a discussion on the book "Liberty, Employment and No More Wars" by T. K. Quinn.

I would appreciate it very much if you could tell me where I might obtain a copy of this book.

Thanking you for your information, I remain,

H. P. Johnson

### Competition With Proper Regulation Is Need

Monroeville, Ind.

Editor:

I wish to take sharp issue with Mr.

Quinn in his philosophy of the inevitability of bigness overtaking all business enterprise in our country.

I have been employed in a large corporation for approximately 15 years and I think I should be capable of making some fairly accurate deductions concerning the conditions which exist within large corporate structures at this time.

There is much plain stupidity and cords and cords of dead wood which brings in inefficiency and waste which is not even dreamed of in a well managed small business.

If we are smart enough to keep big business from getting absolute control of government, I would like nothing better than fair competition with it as a small business man.

I do not think Mr. Quinn realizes what happens to initiative, fair-mindedness and ability for original thinking when a man merges himself with

a large corporation.

God deliver us from becoming a large corporate state. If we do Uncle Sam has received a dose of morphine from which he will never recover.

Thomas Edison was not a large corporation product. If he had settled down to a soft life in a large corporation he would not of accomplished much.

No man is going to exert himself very strenuously to obtain a patent on anything worth while if he knows he is not going to be able to exploit his patent but rather must turn it over to the corporation for which he works; receiving the sum of \$1.00 for his efforts.

Competition, regulated by Christian principles, is the only safe way for our Country to remain great.

We are in a very dangerous period of national history. The spirit of our country's founders is rapidly leaving us. We who have received the priceless heritage of liberty and freedom of thought given to us by our fathers do not realize what we have.

Thank God our boys are coming face to face with reality and when they come back I believe there will

be more determination and strength of purpose than we have shown for some time.

Mr. Quinn suggests you should join a large publishing organization. In my mind I do not know of a more despicable thing that a man with ability can do than leave a place where he has to fight for a living and take a soft job in some large corporation and help strangle the friends of his former acquaintance.

J. K. Marquardt  
RR No. 1  
Monroeville, Ind.

### Prentis Lauds Straight Thinking on Business

Armstrong Cork Co.  
Lancaster, Pa.

Editor:

My attention has just been called to the correspondence in the Letter Column of your issue of May 24 in which I have read with a great deal of pleasure the exchange of letters between yourself and Mr. M. L.

Stewart on big business. Your final answer was so much to the point that I want to congratulate you.

If there were more publicists like yourself who would take the time to straighten out some of the confused thinking about business, our whole economic system would be vastly improved.

I appreciate very much the touch of humor in your letter.

With every good wish, I am,  
H. W. Prentis, Jr., President

### Baker Wins Contract for Wyoming Locker Plant

CASPER, Wyo.—The Frozen Food Locker Co. here has awarded to the Baker Ice Machine Co. of Omaha a contract for refrigeration work in the construction of a 600 locker food storage plant, I. L. Spence, manager of the locker company office here, announces.

In addition to the 600 lockers, the contract calls for a chill room, cutting and wrapping room, quick-freezing room, and processing room.

# THERE'LL BE NO MORE OF ME

because my weight of steel makes...



40 BRIGHT, SHARP BAYONETS

OR TWO 100-LB. BOMB CASINGS

OR 50 SHELLS FOR HAND GRENADES

**NOTE!** The use of steel for making new refrigerant cylinders is not permitted. Such steel can do a more direct job for victory in the form of weapons.

Cylinders are needed urgently if we are to continue to ship. If you want "Freon," send cylinders back promptly to: Kinetic Chemicals, Inc., Carney's Point, New Jersey.

## The "FREON" CYLINDER

"Freon" is Kinetic's registered trade mark for its fluorine refrigerants

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A Complete line of Storage Type  
Water Coolers in accordance with  
Latest W. P. B. Regulations

**DRINKING FOUNTAINS**  
NAVY-2 Models for Shipboard use  
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6 Models for Bakery Service • 3 Models for Film Processing •

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# Hard-Pressed Ice Facilities Fail To Take Up Slack In Refrigeration Needs

## Baltimore Homes Without Food Preservation Means As Ice Company Suspends Deliveries

BALTIMORE — More than 1,800 families without electric refrigeration in the western part of the city of Baltimore are now without ice or any other means of refrigeration. The single ice company serving that section has been forced to cancel delivery service, and war priorities bar them from buying mechanical refrigerators.

No meat, nor milk, nor fresh foods can be safely kept for consumption by these families in hot summer weather. Public agencies and public officials have allowed themselves to be quoted expressing deep concern. So far nobody has done anything about it.

The Wiskow Ice Co., which has served the communities of Arbutus, Catonsville, Ellicott City, Halethorpe, Ten Hills, and Woodlawn for the past 40 years, last week announced that manpower shortages would force the company to discontinue deliveries

at the end of the week, Saturday, June 26, 1943. Other ice companies, already overloaded, cannot help.

"We had 24 men making and delivering ice when war was declared," explained George Wiskow, a partner in the company. "Nineteen of those have left, to go into the Army or better jobs. What men we have left work often from 7 a.m. to 11 p.m. just delivering ice. We haven't made any ice since Christmas, and we've got to stop long enough to make some more. It will take about every man we have. There just isn't any way we can deliver ice to our customers."

Members of these families have brought the situation to the attention of Dr. Robert H. Riley, director of the state department of health; F. A. Korff, director of food control for the city's health department; William H. Oler, manager of the Ice Publicity Association of Baltimore; John Hoffberger, president of the Ice Dealers' Association; Dr. William H. F. Warthen, Baltimore county health officer; Dr. Guy B. Anderson, Howard county health officer; to the attention of the Baltimore offices of the Office of Price Administration, the War Production Board, the War Manpower Commission; to the attention of the city's health department and the Better Business Bureau. All agree that the situation is serious.

A representative of the Hoffberger Co., ice manufacturers, revealed that all the company's plants are working overtime, but that the labor turnover is increasingly a problem. "The United States Employment Service sends us workers from time to time, but they leave after a few days. It's almost a waste of time to train them."

A representative of the Ice Publicity Association of Baltimore admitted that ice deliveries have been growing fewer for some time, and that it has become exceedingly difficult to replace them. "Our remaining dealers try to take care of these customers, but most of our icemen have their hands full. It takes a husky man to carry ice, and there aren't many of them left."

The Baltimore office of the WMC reported that ice manufacturers are

considered essential workers, but that only a few firms had signed the manpower agreement. Dealers can apply under a "locally needed" classification, but have not done so. Ice carriers are not considered essential as such.

Citizens trying to find some person or agency with authority to do something about the situation have not reported much success. Mrs. William G. Plitt, of 233 Mallow Hill Ave., mother of a 3-year-old daughter, called several places. "They treated me very courteously, but said they couldn't help," she told a Baltimore newspaperman. "Each bureau referred me to another one."

N. T. Tongue, of 103 Nunnery Lane, in Catonsville, met something of the same reception. Several times during the hot weather he bought 25 pounds of ice in Baltimore, carried it two miles on the street car, and walked from there on home with the ice on his shoulder. "The (Wiskow) company used to deliver twice a week," he explained, "but on a hot day I'd be afraid the milk might spoil, and 25 pounds extra helps a little." Mr. Tongue has a baby girl.

He tried to buy an electric refrigerator, but was told he could not purchase one unless he lived in a Government-owned home. Then he tried several other ice companies, but they had their own customers to serve. One company's route was only a block away. Another company agreed to deliver ice if he would rent one of their iceboxes. He said he already had one. They hung up.

A Baltimore newspaper, reviewing the situation at the end of the week, reported promising news: "If the problem becomes serious, Dr. Warthen added, he will confer with Dr. Riley on the matter." If the problem becomes serious.

## More Spoilage of Food Shipments Are Reported As Caused By Breakdown In Facilities Used To Preserve Perishables

### 210,000 Lbs. of Meat For Coast Is Spoiled

SAN FRANCISCO—Many carloads of meat from the Midwest arrived here recently in a spoiled or spoiling condition, thereby aggravating the already acute meat shortage on the Pacific Coast.

While the causes for the spoilage were not definitely determined immediately, one of the causes was said to be a breakdown in the icing facilities enroute to the coast.

"With more San Francisco Bay area meat packers closing down and butchers threatening to leave their shops for shipyard jobs, city and federal meat inspectors disclosed that approximately 210,000 pounds of meat have arrived from the East in a spoiled or spoiling condition," declared the International News Service dispatch on the matter.

One radio newscast reported that four carloads of food were held up in Montana because there were no laborers to ice the cars.

San Francisco health officials were said to have stated that this spoilage of meats would not have happened if the cars had been equipped with mechanical refrigeration.

Some of the shipments were designated for the armed services both in and outside of the country, it was stated in some of the reports on the spoilage.

Apparently the only reason why there was a diminution in the amount of rotten potatoes arriving was that the crop in Florida and South Carolina, from which most areas of the spoiled shipments had arrived, were exhausted. Many of the new shipments were coming from closer points, in which cases proper preservation practices were not quite so important.

## O'Keefe Resigns Post In ODT Storage Division

WASHINGTON, D. C. — William M. O'Keefe, of Washington, D. C., assistant chief of the Refrigerated Warehousing Section of the Office of Defense Transportation's Division of Storage, has resigned effective July 10 to return to private industry, it has been announced.

Mr. O'Keefe will resume his position of executive secretary of the National Association of Refrigerated Warehouses, a post he held for 15 years before entering war work and from which he has been on leave since November, 1941.

Headquarters of the national trade association, a division of the American Warehousemen's Association, will be moved to Washington from Chicago.

A specialist in refrigerated warehousing for many years, Mr. O'Keefe served under Ralph Budd, transportation commissioner of the Advisory Commission to the Council on National Defense, before joining the ODT Storage Division.

His work with the ODT has been in the field of refrigerated warehousing of perishable foods for the armed forces, Lend-Lease, and civilian needs.

## Goldberg Addresses Mississippi Valley R.S.E.S.

DAVENPORT, Iowa—Members of the Mississippi Valley Chapter of the Refrigeration Service Engineers Society met last month to hear Herman Goldberg, Chicago manufacturer's representative talk on present day problems and the conduct of refrigeration dealers' future business, the secretary reports.

Refrigeration service men from a number of cities in Iowa and Illinois attended the Davenport RSES meeting and participated in an after-talk discussion with Goldberg on questions relative to servicemen's business operations.

## I.C.C. Notes 'Alarming Shortage In Ice Supply'

WASHINGTON, D. C. — Further evidence that ice supplies are overtaxed may be noted in the order issued last week by Interstate Commerce Commission prohibiting the shipment of fresh or green vegetables in refrigerator cars with both bunker icing and top or body icing.

"The order will have the effect of relieving the drain on ice supplies, which are becoming alarmingly short in various parts of the country," said the announcement of the order.

## Pittsburgh Irritated By Rotted Potatoes

PITTSBURGH — Rotted potatoes were still arriving in Pittsburgh in non-refrigerated railroad cars last week, but in smaller quantities than in the previous two-weeks' period when the percentage of rotten potatoes was such as to reach the attention of Pittsburgh newspapers.

## Sales of Ice Limited In Jacksonville, Fla.

JACKSONVILLE, Fla.—Ice refrigeration cannot be expected to fill the gap being left by limited electric refrigerator manufacture and service, according to public officials in Jacksonville, Fla. Ice plants running on 24-hour schedules are unable to meet domestic refrigeration demands, and platform ice sales voluntarily have been limited to 25 pounds per customer. This situation must be anticipated for the rest of the summer, public announcement has stated. The acute shortage of refrigeration facilities, according to City Health Officer W. W. Rogers, is a result of rapid population increase throughout the Jacksonville area, and Mayor John T. Alsop has appealed to all citizens to conserve ice. Meanwhile the Interstate Commerce Commission has ordered drastic reduction in the number of railroad refrigerator cars leaving the city.

**PURQ ELECTRIC WATER COOLERS**

Different models available for the various requirements of government agencies and war production plants.

**PURQ FILTER CORP.**  
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**DRINKING WATER SPECIALISTS FOR 40 YEARS.**

**KEROTEST REFRIGERATION VALVES AND FITTINGS**

*Serve Cold Storage*

**KEROTEST MANUFACTURING CO.**  
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## AVRGAIRE Saves Food for Fighting America

Strength for the battle of production must come from wholesome food on the tables of our war workers. The supply of meat is critically short of the needs—which means that merchants should take every possible means to prevent spoilage. Penn's Avrgaire control is designed for all "above-freezing" applications in walk-in coolers and reach-in refrigerators. Its "cold anticipation" feature holds temperature closely at

the desired level... maintains correct humidity to avoid dehydration, or sliming. When the box is under an exceptional load Avrgaire delays defrosting until proper cooling temperature is restored.

Penn is prepared to supply Avrgaire and other refrigeration controls to meet the urgent need for food preservation, under the priority rules. **Penn Electric Switch Co., Gosben, Ind.** In Canada: Powerlite Devices, Inc. Toronto, Ont.

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**AUTOMATIC CONTROLS**

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

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- \* DIAPHRAGM PACKLESS VALVES
- \* PACKED AND PRESSURE CUP VALVES
- \* CHECK VALVES AND LIQUID INDICATORS
- \* DEHYDRATORS AND FILTERS
- \* MANIFOLDS AND HEAT-EXCHANGERS
- \* FITTINGS AND ACCESSORIES

Even though we are working "round the clock" on implements of war, every passing month strengthens our conviction that refrigeration equipment is so vitally essential that we should continue to allocate an increasing percentage of our manufacturing facilities, personnel and planning to our refrigeration products.

**THAT'S OUR POLICY...** continuing to do even a better job of supplying, as promptly as conditions will permit, more valves, manifolds, heat exchangers, dehydrators, liquid indicators, fittings and accessories to manufacturers, jobbers, installers and service engineers.

Write for Copy of Catalog R-2

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1509 WEST LIBERTY AVENUE  
PITTSBURGH, PENNSYLVANIA



## TWO MAJOR CITIES REPORT SERVICE FACILITIES SWAMPED

### Cleveland Group Asks President To Suspend Induction of Servicemen

CLEVELAND—A telegram sent to President Roosevelt by the War Emergency Committee of Cleveland Refrigeration Service Agencies calls attention to the depletion of the ranks of refrigeration service engineers in the Cleveland area and requests "an immediate suspension of induction of experienced refrigeration mechanics from this area."

It is pointed out that efforts of the refrigeration service agencies in Cleveland to prevent costly food spoilage and to insure continued operation of equipment in Cleveland war plants are being undermined because the loss of men doing service work is so great that the work can no longer be carried out in any manner that comes close to meeting demands.

Text of the telegram is as follows: "To the President of the U. S. Washington, D. C.

"We, the refrigeration service agencies in this vital defense area comprising Cuyahoga County in the state of Ohio wish to acquaint the President of the United States with the following analysis of existing conditions relative to refrigeration maintenance in this area as brought forth in emergency meetings of the management of these agencies held here tonight. Our efforts to conserve the food supply, prevent food spoilage, and to insure continued operation of refrigeration equipment in war plants are being defeated by loss of competent manpower as shown in this analysis.

"1. Net loss of manpower to date—48%.

"2. Also high mortality of service contractors.

"3. Average efficiency of new service mechanics replacing men lost—43%.

"4. Percentage of service mechanics now employed who are under 38 years of age and subject to induction—63%.

"5. Percentage of service calls not accepted by reporting agencies—41%.

"6. Percentage of service calls not being cared for within 25 hours—49%.

"7. Increase in demand for service due to new installations in war plants and increased age of existing equipment—24%.

"8. Average length of time required to train an efficient service mechanic—2½ years.

"The analysis proves the situation to be of sufficient gravity as to merit immediate action by the Chief Executive, and knowing the risk of working individually through Selective Service routine to be too great, we respectfully request an immediate suspension of induction of experienced refrigeration mechanics from this area until this manpower shortage is relieved by actual assistance to us in obtaining a sufficient number of competent men to adequately maintain the essential refrigeration. Additional affidavits will be furnished local draft boards by the management of each agency to support claim.

W. R. Kromer, Chairman War Emergency Committee of Cleveland Refrigeration Service Agencies."

### Gasoline Restrictions Plus Manpower Shortage Choke off Baltimore Repairs

BALTIMORE, Md.—A survey of local electric refrigerator service firms the week of June 21 indicated that hundreds of household and a number of commercial units were out of order with little likelihood of being serviced immediately since repair calls had increased to the extent where some companies were obliged to refuse business from any except regular customers.

Manpower shortage, lack of sufficient gasoline to make calls, and unavailability of parts were cited by the service firms as their major problems.

Jack B. Ottenheimer, president of the Baltimore Chapter of the Refrigeration Service Engineers Society, said the situation had reached the stage where "service men cannot give immediate answers to calls anymore, except those that involve gas leakage which might endanger health."

Service managers estimated there were 50% fewer mechanics in their repair departments than a year ago.

Louis Ambrosette, head of a service firm handling both domestic and commercial accounts, said: "We just can't get trained help, and we have no alternative but to turn down repair requests. We must say 'no' to 12 or 15 persons daily, some of whom plead with us to send a service man to put their refrigerator in running condition. Most of those persons can't switch to ice because the ice companies are not seeking too much new business because of the gasoline and help shortages."

Concerning the gasoline situation, Ottenheimer said many men engaged in refrigerator servicing would have exhausted their ration coupons by July 1. "Since renewals of their books are not scheduled until the last week in July," he added, "it now looks like many servicemen will be forced to quit making calls altogether."

Ottenheimer cited the recent decrease in the valuation of B and C gasoline ration coupons as forcing fewer service calls, and necessitating holding and routing of calls.



**Miles Up... On The Ground**

IN ORDER that high-flying bomber pilots, gunners and navigators may become accustomed to the rarefied atmosphere encountered at high altitudes, and that student pilots may be graded with regard to their resistance to lack of oxygen and susceptibility to "bends", a long and rigorous series of tests is undergone by all fliers in decompression test chambers, where conditions found at any given altitude may be duplicated.

Great care is taken during these tests to make certain that no condition, other than reduced pressure and lack of oxygen, is allowed to affect the occupants and cause inaccuracies in the grading of the fliers. It is of utmost importance that the temperature in the chamber be held at or near a normal point. Refrigeration, through air conditioning of these decompression chambers is, therefore, an important part of this vital step in the selection and training of our superb fliers for combat duty.

All over the world, in the air, on land and sea, wherever refrigeration is playing its important role, will be found "Detroit" refrigeration products—helping in many ways to win the war today—and contributing to the world's health and well being tomorrow.

"Detroit" Expansion Valves and Controls are doing their bit for Victory all over the world. Wherever there is need for refrigeration or air conditioning, there you will find Detroit products.



## DETROIT LUBRICATOR COMPANY

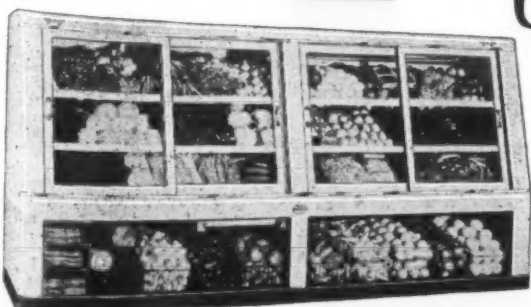
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VEGETAIRE—The finest produce case that money will buy. Builds sales and profits for you. Write for complete franchise details.

**Sherer-Gillett Co., MARSHALL, MICH.**



# HIGH WPB OFFICIALS POISONED BY SPOILED FOOD!

## Canton City Health Commissioner Puts Blame on Lack of Refrigeration

**Batter Used For Pie Showed High Toxic Bacteria Content: Doctor Sounds Warning on Improperly Preserved Foods**

CANTON, Ohio—Thirty-four persons, including several high War Production Board officials, became violently ill here June 23 from eating food prepared from ingredients that had not been properly refrigerated.

An investigation by Dr. F. M. Sayre, Canton city health commissioner, showed that the food poisoning was caused by bacteria in the custard filling of Boston cream pie served at a luncheon given at a local club in honor of War Production Board and military officials visiting Canton war plants.

Dr. Sayre said that laboratory tests of the custard or batter used in the pie showed a high content of toxic staphylococcus bacteria, common parasitic germ.

### LACK OF REFRIGERATION

"Lack of refrigeration as in this case," Dr. Sayre was quoted by the "Canton Repository" as saying, "permits the toxic bacteria to develop and multiply, poisoning the

preparation. At the club the batter had been mixed the night before the pies were baked the next morning."

Government officials who were victims of the food poisoning included:

Charles Schoenlaub, assistant to W. L. Batt, WPB vice chairman.

R. L. Vaniman, chief of the WPB Automotive Division.

William Passano, deputy chief of the WPB scheduling unit.

Howard Porter, regional manager of WPB production and facilities division.

Irving White, assistant director of the WPB automotive division.

Lieut. Comm. Thomas Matthews, U. S. Navy, naval officer in charge of the Controlled Materials Plan.

Maj. Alexander Dickie, U. S. Army, army officer in charge of the Controlled Materials Plan.

In the report of his investigation Dr. Sayre sounded a warning that everyone should exercise great care in refrigerating custards or salad dressing made with eggs, milk and

fillings after they have been prepared and prior to their serving.

The Canton health commissioner warned that there are great danger of this common bacteria and other food germs developing from home canning and in the preparation of food for picnics and reunions during hot weather.

### OTHER FOOD POISONS

Other food poisons that need to be guarded against, the health commissioner said, are the paratyphoid type which can be developed in any food and when taken into the system infect the intestines. This type of illness may become very serious and can cause death.

He said that the most frequent cases are caused by the improper cooking of meat. It often comes from the meat loaf that has been made the day before or meat that after being cooked has not been given proper refrigeration.

The third and most serious type of food bacteria is botulinus which is nearly always fatal. This germ develops the most lethal poisoning possible and 120th of a milligram will be sufficient to cause death. This is found in certain meats and vegetables, but can develop in most any food that is not properly prepared or refrigerated.

As a result of the local poisoning case Dr. Sayre said that the health

## The Story That Sounds a Warning For All

### 33 Taken Ill Here With Food Poisoning

An investigation was started this morning by Dr. F. M. Sayre, city health commissioner, to determine the type of food poisoning responsible for the severe illness of 33 members, guests and employees of the Canton club, located on top of the First National bank bldg., who ate lunch in the club Wednesday noon.

Fourteen of the victims were taken to Aultman hospital and six others to Mercy hospital. A checkup this morning showed that 13 other persons were treated by physicians in their homes.

Many of the victims were high ranking war production board officials and army and navy officers here for a series of plant tours.

Hospital attendants and physicians reported that the conditions of most of the victims were "fair" today and that all are expected to recover.

Although tests have not been completed, it has been determined through a checkup by James A. Finley, manager of the Canton club, that all those taken ill had eaten servings of Boston cream pie.

The pie was baked Wednesday morning in the club kitchen under direction of Chef Pio Novelli and nine kitchen assistants. Eight pies were prepared and all 48 servings sold, the club reported.

Some of the batter for the pie filling, however, was left over and was available this morning for the board of health tests.

Dr. Sayre said that custards tend to become contaminated during prolonged hot weather unless under constant refrigeration and that food poisoning is common and can be prevented.

Franklin J. Arnold, 43, of 2405 Harvard blvd NW, government employee of the rent control board.

Dwight L. Buchanan, 40, of 1403 24th st NW, Hercules Motors Corp. official; released from hospital today.

First. Comm. Thomas Matthews, 46, U. S. navy, of 1800 Baltimore st NW, Washington, navy officer in charge of WPB controlled materials plan; released from hospital at noon today.

Maj. Alexander Dickie, 37, of 1850 Harvard st, Washington, army officer in charge of the controlled materials plan.

William Passano, 41, Capitol Yacht club, Washington; deputy chief of the WPB scheduling unit; left hospital today.

Charles Schenlaub, 38, 2100 Connecticut ave, Washington; assistant to W. L. Batt, WPB vice chairman; left hospital today.

Howard Porter, 47, of 188 Edgewood rd, Lakewood, regional manager of WPB production and facilities division.

R. L. Vaniman, 53, of Washington, WPB chief of the automotive division.

Irving White, 49, 3410 Morrison st, Washington, assistant director of the Canton WPB automotive division.

Miss Laura Brumati, 16, of 828 8th st NW, Canton club employee.

Miss Elizabeth Brumati, 21, of 828 8th st NW, office clerk at the club. Both girls are listed as severely ill.

John Mahoney of 1000 14th and hotel.

This news story from the front page of "The Canton Repository" of Canton, Ohio shows that the staphylococcus bacteria is no respecter of persons—that it will strike anywhere in which there is a failure to preserve foods and food ingredients with refrigeration.

department would take even more drastic steps to see that all eating places observe all regulations and precautions.

"With the help situation as it is today," he said, "I realize that eating houses are working at a handicap, but the health department will insist that the utmost care be exercised in handling their foods and that they must be refrigerated. There will be no excuse for any violation of the law and if it is not carried out to the letter, we will see fit to close any restaurant."

## Food Poisoning Sends 7 To Hospital In Kalamazoo, Mich.

KALAMAZOO, Mich.—Seven persons, including Chief Fred McAllister of the Eastwood suburban fire station and his wife, were hospitalized here last week from the effects of what was termed "ptomaine" poisoning.

(EDITOR'S NOTE: See Paul de Kruif's article on the opposite page, in which he points out that medical science now agrees that there isn't any such thing as "ptomaine" poisoning—and thus such cases are caused by greater than usual concentrations of the staphylococcus germ, generally the result of improperly refrigerated foods.)

The victims were stricken during the night a few hours after they attended a picnic supper on the lawn of the fire station, and all were taken violently ill before they were rushed to the hospital just before midnight.

While the source of the poisoning was not immediately determined, many similar cases are the result of the failure to keep potato salads or other kinds of foods common to picnics under proper refrigeration.

## Ice Shortages Hit Alabama, Florida

BIRMINGHAM, Ala.—The drastic shortage of refrigeration facilities that has caused several Florida resorts to request vacationers to stay at home is being felt also in Birmingham and neighboring cities in southeast Alabama, newspaper reports from that area reveal.

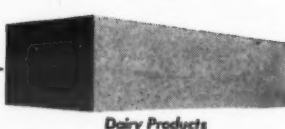
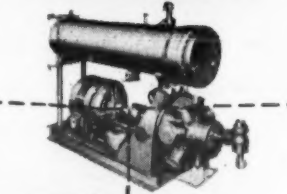
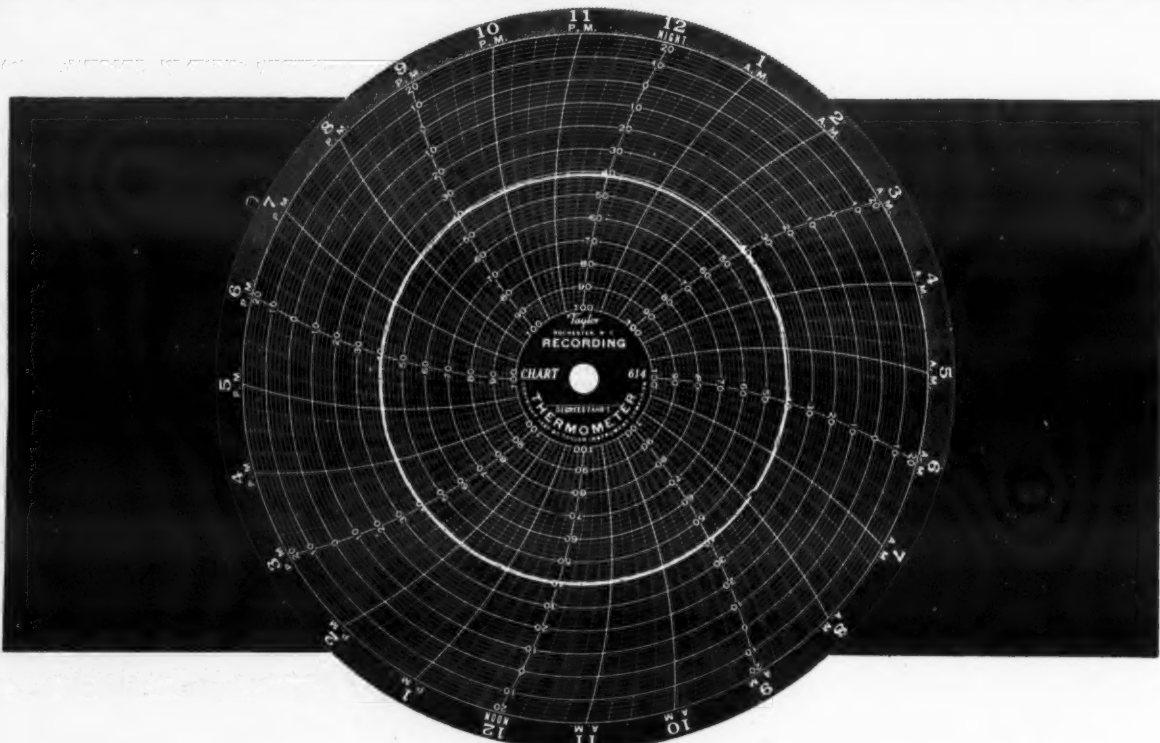
One Birmingham newspaper describes the situation in a June 22 bulletin:

"Birmingham ice dealers, faced with a shortage that will become acutely serious if the present heat wave continues, are urging civilians to use ice sparingly and for essential food preservation only.

"The shortage spreading throughout the South that has caused such resorts as Panama City, Fla., to request vacationers to remain at home until the situation has been alleviated, is being felt in Birmingham and other nearby towns. Surpluses here have already been used and production has been stepped up to maximum output, according to heads of local companies.

"In addition to the unusually high temperature for this season of the year, a number of other factors are said to contribute to the situation. Increased number of refrigeration cars necessary to move food from one section to another since coastwise shipping has been reduced by submarine hazards, and the large number of troops being moved who require refrigeration for water and perishable materials, are among the causes. Added to this is the shortage in manpower for operating ice plants and difficulty in obtaining material for manufacture of ice.

"A special appeal is being made for civilians to forego using ice for cooling beverages until the crisis has passed. Too, they are being asked to buy only a necessary amount in order that the supply on hand can be spread out as far as possible."



## HOLDING CONSTANT TEMPERATURES WITHOUT SHORT-CYCLING!



RADIAL COMPRESSOR

The above Recording Temperature Chart is from an Army cold storage room . . . one of three rooms, each having individual air-cooling units . . . yet all connected to one Chrysler Airtemp Variable Capacity Radial Compressor.

Although the several air-cooling units are cut on and off automatically by their individual room thermostats, constant room and cooling coil temperatures are maintained by Chrysler Airtemp's Variable Capacity Compressor. Close temperature and humidity control is obtained without short-cycling of the compressor. This cuts down wear and lowers operating costs . . . assures safer, surer cold storage of foods.

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In these days of man-power shortage and the necessity for conserving the efforts of skilled refrigeration service engineers, THAWZONE has become more in demand than ever before.

It is positively essential nowadays that the refrigeration manufacturer, serving the armed forces and essential industries, take special precaution, not only to keep moisture out of units before installation, but also to prevent its entrance into or formation within those units after they are in operation.

Certain manufacturers have realized their obligation to the overworked service engineer, as well as to the country in general, by

charging THAWZONE as a preventive inoculation into new units before they leave the factory.

THAWZONE's action is truly chemical as it destroys moisture and neutralizes acid chemically. No dilution-of-refrigerant worries here! An eighth (1/8) of a liquid ounce for each pound of refrigerant in the system is inexpensive and valuable insurance against trouble. One-half (1/2) of that amount in hermetic systems.

Write for our Technical Bulletin

HIGHSIDE CHEMICAL CO.,  
195 Verona Ave., Newark, N. J.



Food poisoning, especially from "leftovers,"  
is a constant danger in warm weather

## Saboteur in the Kitchen

By Paul de Kruif

Reprinted with permission from the July issue of *The Reader's Digest*  
With the above title and comment

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Now that the hot months are here, and now that rationing makes us save every scrap of food, an old danger threatens us anew in every home. The ham, chicken, turkey and tongue that you have for a second meal—your cottage cheese, cream puffs, pies and cakes—can turn into violent poison within a few hours unless you handle them properly in your kitchen.

Last winter sabotage was suspected when 90 members of an airline staff in Chicago were suddenly made so violently ill that all of them were rushed to hospitals. The actual saboteur in this case was found to be a bowl of cream filling that had been left overnight in a warm kitchen and then had been baked into delicious pies.

In upstate New York alone there have been 17 food poisoning outbreaks from cream-filled baked goods in recent years—one of them involving

700 people. For every such case that makes the headlines, there are hundreds of little food poisoning disasters in individual homes. Although no statistics are available, medical authorities believe (on the basis of newspaper reports and local experience) that food-poisoning cases are increasing alarmingly with wartime food shortages and the consequent greater use of leftovers.

When you or someone you know has been thus attacked, you have probably called it "ptomaine poisoning." That term comes from the Greek word for corpse; but this poisoning is not fatal, and the word is inaccurate. Indeed, science has now proved that the so-called ptomaines do not exist; the actual saboteur is that common microbe, the staphylococcus, found on every human being's skin and in throats and noses. It is so all-pervading that for a long time our health men refused to believe that the staphylococcus could be guilty of food poisonings.

Then, in 1930, Dr. G. M. Dack of the University of Chicago caught the innocent-looking staphylococcus red-handed. Two festive cakes had turned the merry Christmas of 11 Chicago people into misery. Dr. Dack's microscopes showed both cakes to be alive with staphylococci.

His subsequent experiments left little doubt that the staphylococcus is responsible for brewing a poison which causes most of our food-poisoning havoc. He and his assistants found that by no means all staphylococci have this poison-forming power. But let toxic staphylococci sneak into ham, tongue, chicken, turkey, cheese, custard, and these foods can turn into devastating poisons in five hours—when they're kept at the temperature of the ordinary kitchen. There is not the faintest hint of the poison's presence by odor. The poison can form in food that has been thoroughly cooked; and once the poison is formed, subsequent cooking does not destroy it.

Among 150 Los Angeles County schoolteachers, stricken when just back from a banquet, buttered buns were the one food that all had eaten in common. Health sleuths discovered that the buns had been held in a warm kitchen for a few hours, and the butter for them had been melted and had stood for a while, not in the icebox but in the kitchen.

At Indianapolis, 206 public project workers who ate tongue sandwiches at 11:30 one morning were stricken by two that afternoon. It was a suddenly hot day. It was reported that the men who had put their sandwiches in the shade were not affected. So vital is the difference of just a few degrees of temperature in keeping the staphylococcus from brewing its poison.

Throughout the country, there have been 20 severe outbreaks of poisoning from ready-to-eat hams or tongue with more than 1,000 persons affected. When those meats left the packer and the butcher shop they were safe. They were contaminated in the kitchen.

Such cases offer a warning to every housewife.

Do not leave any food standing around the kitchen; play safe and keep it at the 40-degree temperature of the refrigerator. Then the staphylococcus cannot grow and multiply. And no growth, no poison!

Remember that poultry, ham, tongue, cottage cheese, hollandaise sauce, and cream-filled

## Warning on Food Preservation Carried to Millions

*The Reader's Digest* is one of the most widely read periodicals in the world, its readers numbering into the millions. In addition to culling out and condensing the best articles that appear in contemporary publications, *The Reader's Digest* has a large staff of its own which prepares original articles, many of which are concerned with matters of scientific import or the public interest.

Paul de Kruif is one of *The Reader's Digest* "roving" editors. He is probably the best-known writer on medical subjects for "popular" consumption, and has introduced many new ideas on health-protecting measures to the general public through the medium of his writings.

baked goods are particularly suspect. Be sure that they have been refrigerated before you buy them; if you save them as leftovers, keep them refrigerated.

When food is warm, or when frozen food has been defrosted, do not wrap it in wax paper when you put it in the icebox. The paper may hold the heat inside the food long enough for the microbe to produce the poison.

Armed with these simple facts, there is no reason why every housewife and cook cannot check the spread of food poisoning that may knock its victims out of useful action for one, two, three days or longer—just when every man-hour is needed.

## Home Radios To Be Made For British

NEW YORK CITY—Radios made of non-essential materials will be placed upon the market for British householders within approximately six months, it was learned recently.

Recognizing the necessity of home radio sets, research experts have developed the "U" model to be produced at a cost of between \$25 and \$35, it was said. It will require the minimum of essential war materials and will be turned out rapidly without interfering in any way with Britain's plane and arms production.

The government has officially approved the manufacture of radios inasmuch as a large percentage of sets in the country are out of order.

## Kellie Discusses New Detroit ASRE Program With Section Officers

DETROIT — New officers of the Detroit Section of the American Society of Refrigerating Engineers, headed by Ed Kellie of American Injector Co. as chairman, met here last week to formulate plans for next year's program.

Other officers of the Detroit Section are Robert Doremus, Detroit Ice Machine Co., vice chairman; and George Poggen, McCord Radiator Co., secretary-treasurer.

Among the ideas advanced at the session called by Chairman Kellie were a 7-meeting program, with the last meeting once again being a social affair with the ladies invited. The meetings would start in October.

The group agreed that greater emphasis should be placed on technical programs, with at least one speaker on a technical subject at each meeting.

Two new suggestions relative to committees were advanced. One was to the effect that there should be one man on the membership committee for each large refrigeration equipment producing plant in the Detroit area. Other suggestion was for a "greeter's committee" to meet and welcome strangers at the meetings, and to solicit their membership.

Other plans aimed at getting "prospects" lists for drives to obtain new members for the section were also discussed by Mr. Kellie and the officers. Committee chairmen will be named at the next meeting.



**To G-E Distributors and Contractors:** You are doing a commendable job in supplying the varied air conditioning and industrial refrigeration needs of war industries. To back you up in this work—and to seek out additional prospects for you in many manufacturing fields—is the purpose of G-E advertising appearing currently in *Time*, *Newsweek*, *Business Week* and 20 industrial publications.

## Cave-of-the-Winds in Miami

Inside this unique building, the engines of Pan American Clippers are put through their paces. Propellers roar with the thunder of 4000 horsepower—creating super-hurricanes as air is pulled down one set of stacks and pushed out through the other set.

Outside, there's hardly a sound—for in each stack a honeycombed unit of cells soaks up the resonance, bit by bit, until it is finally dissipated.

Naturally, this completely windowless test house had to be air conditioned—to remove heat generated by the engines, to provide controlled

testing temperatures, to make working conditions bearable for the engineers. As in so many other exacting applications of air conditioning and industrial refrigeration, the equipment selected was General Electric.

Today, G-E air conditioning and refrigeration engineers are devoting all their talents to problems of war

production and testing. They are learning much that will lead to better, more economical manufacturing methods—to healthier, happier living—when we return to the pursuits of peace.

Air Conditioning and Commercial Refrigeration Department, Division 437, General Electric Company, Bloomfield, New Jersey.

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Refrigeration is a weapon of war. Air conditioning is essential to many delicate war operations. These two simple truths are reasons to feature Gilmer Belts. Gilmers are rugged, long-lasting and efficient. When customers know that you handle Gilmers, plenty of sales and service opportunities open up of their own accord. Be sure to call your jobber today. He can bring you these fine Gilmer Belts.

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## Food Poisoning Hits Headlines As Predicted

HEADLINES on the front page of this issue tell a story that is all too likely to be repeated tragically in locality after locality this summer. They tell a simple, murderous story:

- Without refrigeration, food spoils.
- When people eat spoiled food, they get sick, sometimes die.
- Spoiled food, if not eaten, is wasted food.
- The nation's refrigeration resources for civilians are at present inadequate.

Knowing that proposition (d) is true, the National Refrigeration War Council has been straining with every fibre to hammer home propositions (a), (b), and (c) to people in authority in Washington.

War Production Board officials intimately concerned with refrigeration have been posting the warning signals, too. But the signals have not been heeded by the "top layer" of Washington officialdom—the "layer" which decides how much material goes to whom, and which sets manpower policies.

Now maybe something will happen.

### CHESTER DAVIS SAW THE POINT WHEN IT WAS MADE TO HIM

First indication that a "top level" administrator has caught the idea of the importance of refrigeration comes in the prompt answer—and prompt action—from Chester Davis, former War Food Administrator, to the letter sent him by the NEWS a fortnight ago. (See July 21 issue of the NEWS; also front page of this issue.) The only trouble is that Mr. Davis resigned Monday, and now we have to do the job all over again on his successor.

Shortly after Mr. Davis swung into action came the food poisoning case in

## They'll Do It Every Time By Jimmy Hatlo



Youngstown, Ohio, where high War Production Board and Army-Navy officials went to the hospital, violently ill, from food poisoning caused by unrefrigerated custard. The local Health Commissioner promptly blamed lack of refrigeration for their plight.

### MAY GET SOME ACTION FROM POISONING VICTIMS

If these high officials tell the story of what happened to them in Youngstown to Donald Nelson, General Brehon Somervell, Paul McNutt, and Harry Hopkins, maybe we'll begin to get somewhere with a program of adequate refrigeration for civilian supply.

One hesitates to wish ill luck to anyone, but if Harry Hopkins were to nibble a small piece of unrefrigerated pork, and found out what caused his tummy-ache...

We can state unequivocally that Arthur Whiteside, vice chairman of the War Production Board in charge of Civilian Requirements, is fully acquainted with the civilian needs for more repair parts, new equipment and manpower in refrigeration, and that he has issued instructions for the preparation of a program.

### INDUSTRY LEADERS KEEP FIRING AT THE TARGET

We know that the National Refrigeration War Council is on the job, as is the Industry Advisory Committee.

We know, also, that whatever results may come from their attempts to flag the train of destruction, they will be too late to prevent the repetition of the Youngstown affair, and the food spoilage cases in New York, San Francisco, and Kalamazoo.

Months ago the NEWS predicted that because this industry's cries of warning were going unheeded, food spoilage this summer would create a national scandal. That scandal is now in the making.

Although NEWS reporters have been posted for weeks to watch out for local food spoilage news, it is quite likely that many cases will not be brought to our attention. Therefore we ask that each reader be on the lookout for any such incidents. Send us the details, and we'll give them the publicity.

You can bank on it that civilian requirements for refrigeration will get better attention for 1944.

## LETTERS

### ENGLISH HAVE THEIR PARTS PROBLEMS, TOO

Bramor, Ltd.  
39A Bath Road  
Walsall, England

Editor:

Many thanks for your letter of the 19th ult. We ourselves have wondered why our orders seem to take so long to fulfill even though they are transmitted by air mail to the States. The answer apparently is that air mail is exactly two days quicker than boat.

In reply to the various questions raised, our associate company, Messrs. Brady Engineering Services, find their greatest difficulty lies in the supply of thermostatic expansion valves, rotary seals, and cogged belts. We ourselves as you know have stepped into the breach and we are now making 183 combinations of copper pipe fittings, copper pipe to iron pipe, male to female adaptors up and down, elbows and tees. Through our London office we have orders in hand for, we think, every manufacturer or assembler of refrigeration equipment in this country.

Our associate company, B. E. S., adopted a long term policy at the outbreak of hostilities, and they have now trained up a sufficiency of labor to enable us to handle our commitments on refrigeration service in respect of those plants we have on Maintenance Contracts. These we service the same day as breakdown is recorded.

Chargeable customers who are not on one or other of our maintenance schemes are taken in turn as and when men are available.

In theory it would appear as though the chargeable customer stood the chance of being kept waiting. We find however, that by giving genuine inspections to the maintenance plants during the winter months, these plants do not fail during occasional heat waves we get here.

Reverting back to shortage of supplies, expansion valves seem to be the greatest difficulty in this country, and we would like to manufacture such a product particularly if we were able to locate an approved and simple design.

### REPORT ON REFRIGERATION AT A FIGHTING FRONT

South Pacific Area

Editor:

I never had the pleasure of meeting you, although I have followed your "News" for several years as manager of Super Cold in Cleveland, Ohio, and in Dallas and Houston, Texas. However, I have crossed your trail at Jimmy McAlpine's in New Zealand and Hanson's in Sydney, Australia.

Last week while in Sydney I had a great time at Bob Davies "Electric" reading back copies of the NEWS.

I sure feel sorry for the poor refrigeration industry and their troubles. I have charge of around two million cubic feet of refrigeration from New Zealand north and from Tonga to Australia. I have domestics to 40-ton ice machines—all types, kinds and makes. I have even got a Jap plant in the Solomons.

All my spare parts could be carried in your hat and my mechanics counted on the fingers of both hands. And some of these gasoline-operated jobs need a wet nurse to keep running. I am trying to find, fix or replace either a wick in an Electrolux or piston for a 180 hp. German MAN Diesel—all in a day's work.

I have found that the Diesel runs all right when you pull one piston but not so good when you pull the second. But the boys are getting pretty good at patching things up.

I should have enough material for a very interesting book on refrigeration when this is over—and right now I could give some of the manufacturers a peck of information—some of them could not be recognized even by their manufacturers.

Well, I must sign off this time. Sure could use a few copies of the NEWS. Would like to see what's going on.

E. A. Firebaugh, 1st Lieut., A.C.  
Refrigeration Officer  
S.O.S. S.P.A.  
APO 502  
San Francisco, Calif.

P.S. Saw Nixon in New Zealand.

## QUOTED

### What's Wrong With America?

What is wrong with America that it must be overhauled? We start off by singing "God Bless America," and then proceed to call "old-fashioned" the cardinal principles of Democracy. Our Allies still bless America, our enemies curse its efficiency, the bureaucrats keep planning, and our boys in foreign lands dream of returning to their country as they left it. Without the kind of an America which has existed for the past 150 years, the Axis would now control Europe and Asia and have a first mortgage on the Western hemisphere. What's wrong with America?

America melts her modern conveniences into armament to be sent abroad; America walks that others may ride some day; America eats less than others may not starve; America sends ten million sons to the fronts to save the blood of foreign nations; America shivered last winter. She gives of time and talent to every worthy cause and places her cash on the altar of freedom. This is America! This is freedom, opportunity, initiative, and the will of free enterprise in action. What's wrong with America?

The American system is different from other nations—AND BETTER. Pioneer people came to America because they hated oppression, wars, castes, and starvation. Those pioneers sought opportunity, freedom, and the fortune to govern themselves. Each generation following has multiplied its efficiency, its compassion, and its determination to govern by law and not by decree. The fire of personal responsibility burns deeply in the heart of America. Why pattern American economy after any other nation, especially since America has had to come to the rescue that men may live free? What's wrong with America?

Present regimentation is accepted, not because the people have grown soft, but for the reason a war must be won. This is a planner's paradise, but when the last shot is fired, America will break this entanglement. America will shed its cocoon of planned economy and again pick up the philosophy that individual initiative has made this nation great and powerful. Once again the people will write the rules and call the plays; once again industry, labor, and agriculture will turn to serve one another, and the boys will come back to their homes and families to rear another generation where man's opportunity is measured by his willingness to work, to save, and to build for the future. What's wrong with America? Nothing!

—The Editor, "The Hoosier Farmer"



# Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

He has a good start on it, and will probably lend an attentive ear to any suggestions you may have to offer. Lindsay knows the wholesale business, and can talk your language.

## Ensign Gauen

Dick Gauen, able young publicity director for Nash-Kelvinator, has been sworn in as an Ensign in the Navy, and will leave any day now. We'll miss him.

President George Mason gave him a handsome farewell party at the Detroit Athletic Club last week, attended by Vice Presidents Perkins and Wibel, Export Director Howard Lewis, Kelvinator Sales Manager Charles Lawson, Advertising Manager Chuck Coward, Public Relations Director Ted Little, Nash Sales Manager Larry Spitt, and Ray DeVlieg, Nash - Kelvinator Manufacturing Chief.

Replacing Dick are not one, but two new men: M. C. Faught and W. G. Hayworth. These two interesting young men are trying a housing experiment: with their families they are sharing a single home.

Colored movies of the helicopter were shown—the Sikorsky helicopter which Nash-Kelvinator has been given a contract to build. Those pictures sold us, Mr. Mason. We're prospects. When you can offer them to the public, send around a salesman.

One old friend we missed at this party is Campbell Wood. Mr. Wood was busy at the Nash-Kelvinator propeller plant.

## Hidden Treasure

To help its employees understand and evaluate the new payroll deductions of income taxes as well as social security, war bonds, and other deductions from payroll income, Nash-Kelvinator has recently distributed 26,000 copies of a special book entitled, "Your Hidden Treasure."

Containing 31 pages, the book explains in detail the investment aspects and value to the worker of each paycheck deduction other than straight taxes.

Released at a time when workers in the company's plants in several cities are becoming increasingly conscious of the paycheck shrinkage caused by the various payroll deductions, the book explains these in terms of investments that will pay off with dividends in the future and shows employees how to determine the total dollar-and-cents value of these investments. The book provides spaces for the inclusion in the worker's record keeping of the new 20% pay-as-you-go income tax deduction.

To stimulate workers to keep track of the dollars-and-cents breakdown of their paychecks, "Your Hidden

Treasure" provides a detailed record in which the worker can keep a running account of all deductions. Space is also provided for entering the amount of his check (after deductions) and his total earnings.

The employee's name, social security number, and his 1943 payroll record for the period from the beginning of the year to the date he gets the copy of the book is entered in advance by the company, thus giving the worker an up-to-date record when he receives the book. He is urged to make the proper entries every time he gets a paycheck so that he will know at all times what his payroll record is.

In addition to serving as a payroll record, "Your Hidden Treasure" provides each employee with several other tables designed to help him keep accurate records of his personal possessions. The first of these is a war bond record, in which the employee can enter the purchase date, purchase price, maturity date, maturity value and serial number of all war bonds he buys.

The second is a home-payment record, which provides space for entering total monthly payments made on his home and the amounts of the various items—such as interest, taxes, insurance, etc., that make up the total. The third and fourth are insurance records, in which the employee can enter all payments made on his insurance policies plus certain pertinent facts regarding each policy.

Mr. Mason explains his reasoning on the issuance of this employees' guide this way:

"First the company feels that its employees, armed with all the facts, figures, and necessary information covering their personal finances, will be better equipped to handle the complicated task which will beset workers when it comes 'owning-up' time for the new income tax and any future levies. Secondly we feel that families of workers should have complete financial records to help them avoid entanglements in event the worker should die or meet with serious financial reverses.

"In this latter regard we have devoted an entire section of 'Your Hidden Treasure' to suggestions on loose ends that should be tied up in case of death. A pattern of 'things to do' is given, and survivors are urged to explore the worker's wage status, life insurance, group insurance, income tax, indebtedness, property titles, other taxes and social security."

## Smith on Vacation

If you are one of the hundred men in the industry who plan to phone Sterling Smith (chief of the air conditioning and commercial refrigeration section of the General Industrial Equipment Branch of the WPB),

don't do it. He won't be there.

Harassed, hard-working Sterling has been ordered by his doctor to take a needed two-week rest cure. And no wonder.

Three times last month this department sat in Sterling's office for a considerable period, trying to work in a discussion between his phone calls. It just couldn't be done. While he would be talking to a man in Virginia, two men from New York and one from Jacksonville would call in—chiefly with regard to Freon and L-38.

His superefficient secretary—one of the best we've encountered in government service—juggles these calls until Sterling can take care of them. By the end of the day Sterling is a wreck.

We bring this up just to give you a bit of perspective on an overworked young man. Each man who calls thinks only of his own problem. To him it's the most important thing in the world at that time. To Sterling it's just the 49th headache of the day, with three more headaches waiting on the line for his attention.

There may be times we disagree with Sterling. We may have fault to find with some of the orders (those faults may not be his). But let it never be said that we lack sympathy for him or the nerve-racking load he's carrying.

Incidentally, he recently became a father.

## Introducing Fred Smith

Sterling Smith now reports to Fred Smith, chief of the WPB's special

equipment division of the General Industrial Equipment Branch. This Mr. Smith is a former Frigidaire zone man, and he is the type of business man we should be grateful is entering government service in these trying times.

Fred is resourceful, a go-getter, and a man of practical experience. So far the virus bureaucratism has not infected him—as it does too many business men who take Washington jobs.

He is the kind of man who not only gets things done (his Frigidaire training is stamped all over him), but who initiates new ideas. He should be a big help.

## Medical Refrigeration

War gives birth to freakish clinical cases. From "Time" magazine's Medical Department comes the report on Immersion Foot and Airman's Hand. Both types of chill are given the cold cure treatment.

Immersion foot is a first cousin to the old trench foot of World War I, and is a case of bloating caused by confinement for long hours in open lifeboats with the feet soaked in cold sea water. The airman's affliction comes from exposure to cold temperatures at high altitude. His face may be affected as well as his hands.

The treatment consists of sprinkling open spots with sulfanilamide, keeping the injured flesh cold and then gradually raising the temperature to normal.

A refrigerating unit devised by the Canadians is built so that the patient's legs are fitted into the cold box while

the rest of his body is kept warm. In England, doctors keep the injured parts in cold water.

Advanced cases do not always react favorably to the cold cure; but amputations, compared to the numbers in World War I, are greatly reduced.

Royal Canadian Navy surgeons have done an excellent job as shown by their report on 150 North Atlantic survivors exposed for many days. Out of this number there were only seven amputations.

## REFRIGERATION PARTS NEEDED

Idle and surplus inventories of refrigeration parts can now be put to essential use in helping to maintain the nation's huge investment in refrigeration.

We buy outright for cash, usable parts for distribution to over 20,000 refrigeration service-men customers. Let us put your idle inventories to good use—you will then be helping conserve scarce and precious materials.

## The Harry Alter Co.

1728 So. Michigan Ave.  
Chicago, Illinois

"BUT WHAT ABOUT THE REFRIGERATING UNIT?"



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### WE INVITE YOUR INQUIRIES ON REFRIGERATING UNITS FOR:

Frozen food cabinets  
Food storage refrigerators and display cases  
Ice cream cabinets  
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Commercial refrigeration equipment  
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Certainly your customers expect advanced design in postwar refrigeration equipment. But the accent, as always, will be on performance. And that's where Universal Cooler can help.

In nearly a quarter-century's experience in the manufacture of refrigerating units, Universal Cooler developed many important "firsts" in the industry. Today, concentrated production for all branches of the Armed Forces is adding further improvements both in unit performance and production efficiency. However, part of Universal Cooler's expanded research-engineering facilities are available now, to help you adapt these innovations to your post-Victory plans.

**UNIVERSAL COOLER**

UNIVERSAL COOLER CORPORATION • Automatic Refrigeration since 1922  
MARION, OHIO • BRANTFORD, ONTARIO

**NOW!**  
**METHYL CHLORIDE**  
**AVAILABLE**



We expect to be able to supply the current requirements of the refrigeration industry for Methyl Chloride, subject to the regulations of the War Production Board. Order what you need but please do not stock up unnecessarily. Electrochemicals Department, E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Delaware.

Important! Don't let idle cylinders hold up supplies now available. Look through your stocks and warehouses for any empty cylinders, or cylinders which can be emptied . . . and return them promptly.



**METHYL CHLORIDE**

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



## Department of Agriculture Charged With Promoting 'Racket' in Home Dehydrators

NEW YORK CITY—The Department of Agriculture has been charged by the National Dehydrators Association of "foisting an unconscious racket upon the American housewife, victory gardener, and farmer," in allowing the promotion of home dehydrating equipment by the Tennessee Valley Authority, the Rural Electrification Administration, and certain public utility companies.

Doubtful of the operation and actual worth of the home dehydrating units in question the association, which is representative of the com-

mercial dehydrator industry, is afraid that the poor impression made by these units will be reflected at a later date in the public acceptance—or lack of it—of commercially inspired units.

Except under perfectly controlled conditions, members of the association contend, it is almost impossible to dehydrate foods successfully and consequently they believe that the line of home dehydrators "sponsored" by the Department of Agriculture will result only in customer disappointment.

## OCR Explains Why It Considers the Furniture Market To Be Essential

WASHINGTON, D. C.—The WPB Office of Civilian Requirements recently pointed out that because of their important place in furniture distribution certain furniture markets should continue to be held.

WPB approval would be based among other considerations on the importance of particular markets in the furniture distribution system, and on assurances by representatives of the trade that everything possible will be done to eliminate non-essentials, to limit attendance to actual buyers and sellers and keep

this to a minimum consistent with efficient furniture distribution.

In the furniture industry, central markets largely take the place of wholesale institutions and direct relationships between manufacturer and retailer, and their elimination would threaten a serious hardship to smaller distributors (particularly in the most sparsely settled sections of the country) who would otherwise have difficulty in obtaining merchandise in a satisfactory fashion.

After careful analysis clearance was given to the Chicago market.

## 'Correct' Preparation Vital in Home Dehydration

### Latest Findings Given At G-E Conference

BRIDGEPORT, Conn.—"By following correct procedures a housewife can produce dehydrated fruits and vegetables that will delight the whole family, but if she doesn't do the job right, disappointment and prejudice against dehydrated foods may follow," Dr. Donald K. Tressler, in charge of food research at the General Electric Consumers Institute told 75 magazine food editors, utility home economists and food authorities during the recent Wartime Food Preservation Clinic in the Institute here.

A tremendous interest on the part of housewives in home dehydration this year, stimulated partly by the shortage of pressure cookers for canning, was reported unanimously by clinic guests from various sections of the country. After a taste test of many kinds of food dehydrated, re-freshed and cooked according to the Institute's recommendations, it was agreed that if housewives learn to dehydrate properly this year and discover how excellent the results can be, they are likely to continue, even after the war when pressure cookers are plentiful, to dehydrate at least part of their crops.

It was predicted also that freezing of foods will become popular following the war, when refrigerating equipment becomes available.

A home dehydrator, Dr. Tressler



Latest information on food treatment in the home was exchanged by experts at the G-E Food Preservation Clinic. Left to right: Millard Faught, then eastern district representative of the U. S. Food Distribution Administration (now with Nash-Kelvinator); Aimee Larkin of "Collier's" magazine; and Dr. D. K. Tressler, in charge of food research at the G-E Consumers Institute. Edwina Nolan, manager of the G-E Home Service Section, was chairlady for the clinic.

explained, should be so constructed that the sliced or diced vegetables and fruits which have been placed on trays, are subjected to currents of warm air. At the early stages of the process, a temperature as high as 180° may be used. When the food is partially dry, the temperature should be reduced to 150° or lower, depending upon the food being processed.

Dehydration requires from four to 24 hours, or even longer, the time depending upon the product, size of pieces, temperature, humidity and rate of movement of air. Thus, finely cut cabbage should dry in four hours, whereas prunes or halved apricots take 24 or more hours.

Excerpts from the Institute's recommended procedures, as presented by Dr. Tressler at the clinic, follow:

#### SULFURING FOR FRUITS

The proper preparation of foods for dehydration is just as important as correct drying conditions. Certain fruits, for example, should be sulfured. Sulfuring keeps peaches, apricots, apples and pears from browning, and it helps to retain the vitamin content.

Dr. Tressler explained an easy method of sulfuring which is practical for home dehydration of small quantities. The pieces of fruit are sulfured by holding them in a sulfite solution of the proper strength. Sodium bisulfite or sodium sulfite, either of which may be purchased in drug stores, may be used. A 30-minute immersion in a solution of three ounces of sulfite to five gallons of water is sufficient to keep sliced apples from browning. Other fruits require more time.

This sulfuring method, which has been thoroughly tested in the Institute, gives excellent results and is much more convenient to use for small quantities, than the conventional sulfuring method for large-scale dehydrating, namely, the exposure of the fruit to the fumes of burning sulfur.

Small berries, such as blackberries, huckleberries, blueberries, cranberries, raspberries, loganberries and dewberries are easy to dehydrate and require no special pretreatment. Their proper dehydration temperature is approximately 150°. Red sour cherries should be chilled in ice water before they are pitted. Cherries should be dehydrated in a thin layer, or the process will be too slow. Dr. Tressler pointed out that dehydrated cherries make a delicious confection.

#### HOW TO TELL WHEN DRY

Fruits contain much sugar, and consequently need not be dried a "bonedry" condition in order to have them keep. It is necessary only to remove enough moisture to obtain an elastic product which will spring back after being compressed in the hand. When a piece of dehydrated fruit is cut or broken, it should be uniformly dry throughout and should not be moist in the center. When a piece is pressed in the fingers, it should not be possible to squeeze out any juice.

#### DEHYDRATING VEGETABLES

Vegetables which make excellent dehydrated products include beets, cabbage, carrots, sweet corn, squash, pumpkin, sweet potatoes, Irish potatoes, rutabagas, peas, onions, peppers, garlic, snap beans, lima beans, and celery. Others, which require more care, but which can be dehydrated without great change in flavor, color and texture include spinach, swiss chard and other greens.

Many vegetables require pre-cooking or blanching before dehydration, to destroy the oxidizing enzymes which, if present in the dehydrated product, may cause deterioration in color, flavor and vitamin content. (A table showing time of blanching for various vegetables has been prepared by the Institute and is available.)

A larger percentage of moisture must be removed from vegetables than from fruits. If a dehydrated vegetable contains more than 8% moisture it may spoil because of the action of the molds and other micro-organisms. Further it will be subject to chemical changes which cause loss of color, flavor and vitamins. Vegetables containing too much moisture are flexible and elastic. Those low enough in moisture after dehydration are brittle; then broken, they usually show a glassy fracture.

#### STORING DEHYDRATED VEGETABLES

Dehydrated vegetables must be kept in packages impervious to moisture vapor. Tin cans, such as those used as containers for coffee, make ideal containers. Glass fruit jars with a rubber seal are satisfactory, provided they are kept in a dark place, since light bleaches out the natural pigments of dehydrated vegetables. Heavily paraffined cartons may also be used, provided storage is in a fairly dry atmosphere. Storage should be made in the coolest place possible. If the temperature rises above 80° F., the palatability, color and vitamin content of the vegetables will deteriorate.

#### COOKING DEHYDRATED VEGETABLES

Most dehydrated vegetables do not require long soaking. In fact, long soaking makes them mushy, and it dissolves out some of the color and much of the flavor and vitamin content. The Institute has worked out a table which tells just how much water to add for each type of dehydrated food. Dehydrated vegetables should be cooked in a very small amount of water.

During the clinic demonstration on frozen foods, it was suggested that frozen vegetables and fruits, when packed in watertight containers, may be floated in a pan of lukewarm water for 15 minutes for speedy thawing. This saves time when thawing fruits for pies or desserts; also for thawing vegetables to separate them into individual pieces for quicker cooking.

W. M. Timmerman, G-E refrigeration engineer, explained the importance of thermostatic control and the use of a fan in dehydration. He showed a test model of a home dehydrator which G-E has developed.

## THE ENEMY CAN'T HIDE FROM RADAR

No longer can the enemy lurk securely in the black shadows of night or a blanket of fog. Radar is on guard...the miraculous radio weapon that locates unseen enemy targets, warns against the approach of hostile forces, pierces the veil of fog, clouds and darkness.

NOW THAT THE SECRET of Radar is officially revealed, the real story of Philco's vital contribution to victory can be told. Throughout its long years of leadership in radio, Philco research has made important contributions to the science of ultra-high frequency waves, upon which Radar is based. When our sea and air forces called upon the electronic industry of America to produce Radar quickly and

in quantity "to turn the tide of Axis conquest," the research and production experience of Philco was ready. And, with the close cooperation of the scientific branches of the Army, the Navy and the government, Philco delivered!

That is the story of Philco at war. When Victory is won, these wartime achievements will appear as peacetime miracles of radio, television, refrigeration, air conditioning and electronics for the homes and industries of America...under the famous Philco name. And Philco All Year 'Round will be, more than ever, the most valuable franchise in the appliance field!

# PHILCO CORPORATION





# Morton Show Case Co. Proved it Merited Army's Confidence by Filling Rush Order

## Dayton Distributing Firm Taps Sources Of Aid to Provide Sub-Zero Job on Time

DAYTON, Ohio—How an aggressive commercial refrigeration distributor tapped sources of industry information to provide, in a rush, some special equipment for U. S. Army use was demonstrated recently when the Morton Show Case Co. here filled an order placed in Denver, Colo. for ultra low temperature cabinets.

The incident showed how a distributor, an industry publication, and a manufacturer can link together their resources to meet an emergency demand for the war effort.

Opportunity for this service arose when the officer in charge of the Arctic Training School for Aviators at Buckley Field, Denver, teletyped to Wright Field, the air force procurement headquarters located in Dayton, that he was in urgent need of four sub-zero testing cabinets.

It was specified that these units were to be complete with two-stage compressors capable of producing temperatures as low as -85° F., oxygen lines for oxygen testing procedure, insert lines for vibrating instruments, and sight gauges for ascertaining temperatures.

Furthermore, the equipment was to be made into a portable unit which could be moved on casters or rollers.

Delivery point was specified as Denver, within 15 days.

### ARMY CALLED MORTON

The Morton Show Case Co. had made itself known to the Wright Field procurement office early in the war emergency, and had achieved a reputation with the field as a firm that could produce a "rush job" within the time limits established. To Wright Field asked the Morton Show Case Co. if it could follow through on the order and have it filled by the prescribed date.

The principals at Morton Show Case were generally familiar with the new field of low temperature testing cabinets, but in this particular case, it was believed advisable to contact as many sources as possible, since the equipment would of necessity have to be in stock, or at least be in "design" for quick fabrication.

Recalling accounts of similar types of cabinets published in both the advertising and editorial columns of AIR CONDITIONING & REFRIGERATION NEWS, George Sanders, president of Morton Show Case Co., sent a tele-

gram to the editors of the NEWS, describing the specifications of the equipment ordered from Buckley Field, and asking that sources of equipment be contacted and informed of the kind of equipment called for.

The editors of the NEWS in turn wired the information to a number of manufacturers of original equipment of the type specified, with a request that these manufacturers make direct contact with the Morton Show Case Co. on the matter.

### PRODUCERS MAKE CONTACT

The manufacturers promptly made contact with the Dayton distributing concern, and a deal was consummated whereby the Kold-Hold Mfg. Co. agreed to furnish the equipment according to specifications.

By working over Decoration Day weekend the factory staff at Kold-Hold completed the job well in advance of schedule. Army officials kept in touch with the progress of the Kold-Hold staff, and when the shipment was ready a Railway Express car was on hand at Lansing, home of the Kold-Hold Mfg. Co.

The equipment arrived in Denver two days ahead of schedule. The engineering staff at the Army post had all the preparations made for the installation, and within a short time test runs were made. According to word received by officials of the Morton Show Case Co., all four of the cabinets pulled down to 85° F. without a hitch.

Raymond Beasecker, service manager for the Morton Show Case Co., handled the installation details. Mr. Beasecker, who was employed in special war work for the National Cash Register Co. when the Denver job came into being, was "requisitioned" by orders from the Army officials and spent 18 days in helping to speed the job to its completion.

### AN 'UNUSUAL' OPERATION

In the four years of its history the Morton Show Case Co. has built an annual volume in commercial refrigeration and allied products that is near the half-million dollar mark.

This volume of business has been accomplished by merchandising methods that are unusual, if not unique. Practically no "soliciting" of sales is done by personnel of the company.

Reliance is placed on advertising—all kinds of advertising. More than

400,000 pieces per year of direct mail advertising is sent to merchants and other prospects in the territory.

Daily radio programs advise merchants "to modernize and keep the undertaker away."

About four times a year the Morton Show Case Co. startles its prospects with full page newspaper advertisements.

A large showroom is maintained in the downtown district, and the signs are of such a nature that you'd have to be a blind man not to see them. Officials of the company claim that there is never less than \$100,000 worth of fixtures on display at all times.

In another unusual twist of its operations, the Morton Show Case Co. makes all of its installations at night.

Among the refrigeration equipment lines handled by the Morton Show Case Co. are Brunner condensing units, National Store Fixture Co. cases and coolers, Morton Show Case Co. cases, United Refrigerator Co. cabinets, Sherer-Gillett Co. meat and vegetable cases and walk-in coolers, and Leitner and Co. equipment.

Officers of the company are George Sanders, president and general manager; Ruth Sanders, secretary; E. M. Slyder, vice president; Irving Bailer, sales director; H. Ed Hermann, chief engineer; Raymond Beasecker, service manager.

## Refrigeration and Air Conditioning As a War Production Tool

By L. W. Clifford, Sales Development Section Supervisor, Westinghouse Electric & Mfg. Co., East Springfield, Mass.

### Food Dehydration

There have been very few processes about which more has been written in the trade and technical press than on the subject of "Food Dehydration."

As to the equipment used for dehydration, there is much difference of opinion and many types of equipment are being used. However they all fall, roughly, into four classes.

1. The "spray type drier," for liquid foods, in which the product is sprayed, in a fine mist, into a blast of hot dry air. The water content evaporates into the air stream and the powder residue remains in the dehydrating unit.

2. In the "drum type drier" the product is fed onto a steamheated, rotating drum. As the moisture content evaporates the solids cling to the surface of the drum from which they are scraped by a stationary knife. This type has been long used for whole or skim milk.

3. The "vacuum type drier" is a sealed vessel in which the product is heated in a vacuum. As a result of the vacuum the moisture content boils off at low temperature, thereby preventing "cooking" of the product.

4. The "tunnel type drier" is, probably, the type in most common

usage, particularly for solid foods. In this type the product travels through a tunnel into which dry hot air is introduced. At the discharge end of the tunnel the product emerges dehydrated to the specified "dryness" and is packaged.

There are three phases of this industrial process in which we have a direct interest.

1. The foods to be processed must be of the best quality at the time of dehydration to assure a good quality of rehydrated product. In many cases this will require adequate refrigerated storage spaces for pre-dehydration storage.

2. Realizing that the product will often leave the dehydrating unit with a moisture content as low as 5% and that it must be packaged without any appreciable moisture regain having taken place, it will be seen that the atmospheric conditions in the "packaging" room are important and air conditioning becomes a "must."

3. While there is a difference of opinion as to refrigeration of the product after dehydration, some authorities have concluded that dehydrated products held at 50° F. are much superior to those not kept in refrigerated storage.

## How Hard Is "Hard"?



One of a series of actual photographs taken in the Alco plant.

## -It May Be Rockwell C-52-54!

Because hardness is only comparative, there is no such thing as an "absolute hardness scale." Hardness is therefore measured against a table of standards, such as the Rockwell scale, determined by the action of the Rockwell Hardness Tester.

In the fabrication of metal parts, to facilitate working, or for functional reasons, it is often desirable to hold the metal within certain limits of hardness. The "hardness" itself, or other physical properties with which it may be associated, can be controlled by periodic measurements on a hardness tester. The readings obtained may indicate the necessity of heat-treating, annealing, or a change in the working procedure.

By the Rockwell method used by Alco, measurement is based upon the increase of penetration by a diamond-tipped cone, due to an increase in load. Only 0.00008" penetration into the metal gives a reading of nearly 4 degrees on the dial circle. By using this precision machine, when Alco's standard of hardness for a certain part is set at "Rockwell C-52-54," all such parts must test within these limits.



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### — a sure thing when AMINCO OIL SEPARATORS

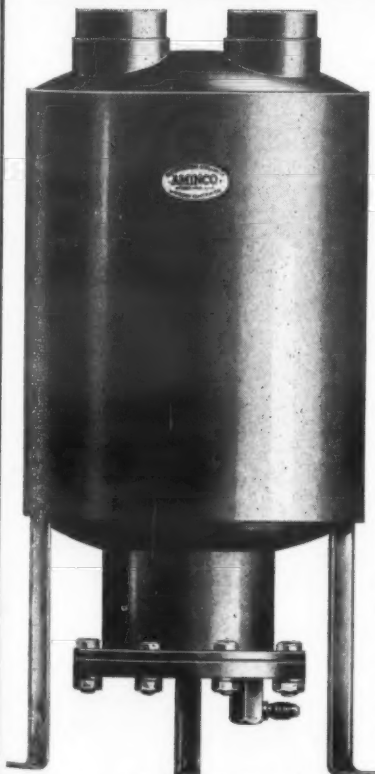
protect Coils, Condensers, Compressors, Valves and Dehydrators by picking oil out of the refrigerant stream and AUTOMATICALLY returning this oil to its proper place, the crankcase.

Now that replacements are hard, almost impossible to get, those charged with the responsibility of maintaining existing equipment are looking for longer operative life and reduced operating costs.

Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from 1/2 H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

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310 S. Michigan Ave., Chicago, Ill.

ALCO VALVE COMPANY—853 Kingsland Avenue, St. Louis, Missouri



# Portable Refrigerators Industry's Contribution to Forces in the Field

## Mooney Tells How 'Thinking' Was Pooled to Develop Units

CLEVELAND—At the Naval War College, relates Mark Mooney, manager of refrigeration sales for Carrier Corp., is a never-erased sign which reads:

W ater  
A mmunition  
R ations.

The Navy—and the Army—knows that its men must have these things in order to wage war effectively. And the significance of this to the refrigeration industry, declared Mr. Mooney, in addressing the spring meeting of the A.S.R.E. on "Mobile and Portable Refrigerators for the Armed Forces," is that "Rations" to the U. S. fighting man means the kind of foods he's had all his life, and that means that refrigeration is a vital necessity for giving him such foodstuffs.

Mr. Mooney called attention to the manner in which the industry has constructed equipment which has withstood the rigid tests to which the experts of the armed forces subject it. The 150 cu. ft. refrigerators are loaded with 6,000 lbs. of wet sand and with the ambient temperature stepped up to 110° F., the gasoline engine driven unit is started. After two-and-one half days in which complete records are taken, the same test is run with an electric motor driving the compressor.

Then the cabinet is shoved out onto a concrete loading platform and loaded with 6,000 lbs. of loose scrap iron. After each dimension of the box is carefully measured so that checks can be made on how the refrigerator frame stands up under the severe shock of the drop to which it is to be subjected, a crane swings around and hoists the box into midair. Upon the order of the officer in charge it is sent crashing onto the concrete.

### SUBJECTED TO TOUGH TESTS

This same drop test was repeated six times with the same piece of equipment in a single day, but each time the 10,000 lb. load was raised higher, or dropped at a different angle. After each drop, in the tests which Mr. Mooney witnessed, the gasoline engine and the electric motor started satisfactorily. The hinges on the door of the box were sprung slightly, but there was no other major damage.

Several refrigerator companies throughout the country are building these portable refrigerators today, such as the Weber Showcase & Fixture Co., Hussman-Ligonier and Universal Cooler Corp. Many of the units are in actual use in combat areas.

While the portable self-contained box is doing such outstanding work in carrying frozen foods and perishable medical supplies to the front, there is another splendid development known as the "Standard Sectional Demountable Walk-In Cold Storage Facilities."

After a shipload of perishable foods reaches its destination there must be facilities available for storing these large quantities of perishable foods. The Army, the Navy and the Marine Corps all have the same problems. Early last year they got together in Washington and discussed their requirements with a group of representatives of refrigeration equipment manufacturers.

### COMPANIES GOT TOGETHER

Some of the refrigerator manufacturers present were some old line box companies, such as McCray of Indiana, C. V. Hill of New Jersey, Weber of California, Hussman-Ligonier of St. Louis, Viking of Kansas City, Tyler of Michigan, Grand Rapids Cabinet Co. of Michigan, and Gloekler from Erie. Some of the refrigeration machine representatives came from York, Chrysler, Universal Cooler, U.S. Thermal Control Co., Carrier, Worthington Pump and Machinery Corp., and General Electric. This gives you some idea of the cross-section of opinion which went into the design of the standard walk-in cold storage facilities.

After four-and-a-half days of free and open discussion, of every possible angle of this subject, the refrigeration industry submitted a specification which represented the joint thinking of the entire group. It is a remarkable fact that this specification today is the basis of standardization for the demountable walk-in coolers used by the Army, Navy and Marine Corps. These boxes may be refrigerated by gasoline engine driven refrigeration units or electric motor driven refrigeration units, or a combination of both.

The refrigerators and machines are interchangeable, and in case of battle damage the panel from a refrigerator built in California will fit snugly into a box made in New Jersey, Michigan or Pennsylvania.

Or for example, if an enemy plane strafed a United Nations camp and a few machine-gun bullets disabled a condensing unit, replacement machines of this standard design from Minnesota, Ohio or New York could easily be installed in a few minutes. Thus, the temperature rise in the refrigerator would be checked before any serious spoilage could happen to any of the precious food or drug supplies.

When the machines are first installed, it is often necessary to run with gasoline engines. As soon as the large engine driven generators can be safely landed and electricity is available, the gasoline engines can be removed and an electric motor installed on the same base, and even the same pulleys and belts and instrument panels can be used. Within a very short time, the conversion to electric drive can be accomplished in the field.

### SPARE PARTS VITAL

In some of the early shipments of refrigeration machinery abroad, the importance of spare parts and tools was overlooked, and many of these machines were out in the field without the proper tools or spare parts. This condition was remedied as soon as possible, and the refrigeration machinery being shipped out now is fully equipped with a complete set of tools and an adequate supply of spare parts to keep the machine in operating condition in case an overhauling is needed.

Two complete charges of Freon and oil are also sent with each unit as spare parts, as well as two complete sets of belts.

Speaking of spare parts, I would like to touch upon the careful attention required for processing and packaging of these parts. If a machine breaks down thousands of miles away from home, it must be very disconcerting to open up the spare parts box and find a discharge valve plate or a bearing pitted and corroded, or to try to use a ratchet wrench that is so badly rusted with

sea water that it is beyond all hope of being useful.

Imagine, if you can, replacement motors whose commutators are swollen. What good are gaskets so pitted they look like a sieve? We are told that often times the hold of a ship is sprayed with water from the fire hose at frequent intervals to reduce the danger of loss by fire.

Furthermore, in the case of hasty landing, it is often necessary to dump the cargo off into shallow water and then the boxes are fished out of the sea whenever it is convenient and safe to go after them. This means that packages must be truly waterproof.

Says the latest Corps of Engineers—specifications "consist of rustproofing and individually packing spare parts so that when shipments are made overseas they may be capable of withstanding rust and corrosion for three years under all kinds of climatic conditions."

When these units are operating in distant points of the world, there is no chance to call a service man when the box temperature gets too high and the engine fails to start. Co-operating with the refrigerating industry, instruction manuals are now sent with each unit which are written in simple language that can be easily understood. Each book is equipped with hundreds of photographs and sketches which describe each operation from a minor adjustment to a major overhaul.

## Equipment Must Stand All Kinds of Weather

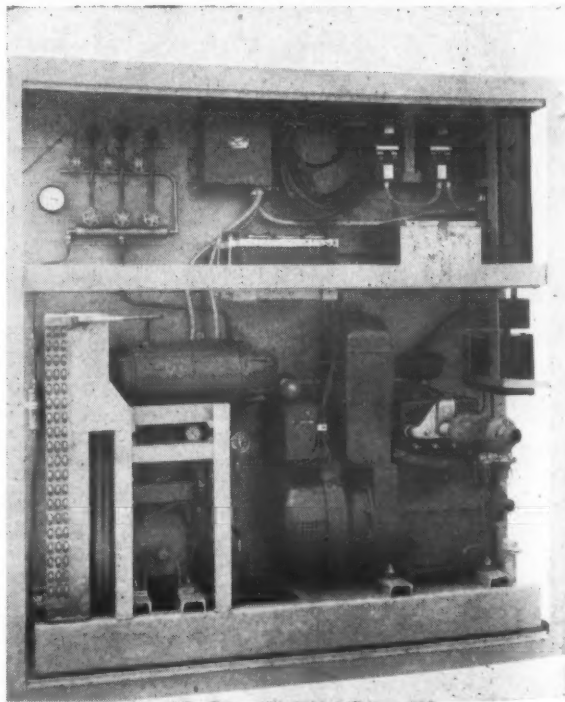
In the discussion of Mr. Mooney's paper it was pointed out by Al Newton of Minneapolis-Honeywell Co. that this portable refrigeration equipment had to be built to operate under any kind of conditions in any part of the world. The units are subjected to the sands of the desert, the freezing cold of the Arctic, and to the corroding and damaging effects of voyages on salt water.

Also, the units must be of such design as to handle very extreme requirements on the "pull-down," as they must need be "put into action" immediately when the situation requires it.

In an answer to a question on how much of the Army's food requirements need food preservation, one estimate was to the effect that the soldier eats an average of 7 lbs. of food daily, of which one-third requires preservation by refrigeration.

## 'Insides' of Portable Refrigerator for Battle-Front Use

This portable refrigerator, manufactured by Weber Showcase & Fixture Co. and designated by them as a type "H" model, carries a gasoline engine for power, but is also equipped so as to be operated by either AC or DC current. Note gasoline engine and condensing unit assembly at the bottom.



Our service on all properly rated orders will surprise you. Prompt shipments, parts, supplies, tools, tubing.

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## Marines Bestow Praise For Operation Of Field Refrigerator In South Pacific

MINNEAPOLIS—Five years' experience in pioneering and building mobile refrigerating units for tough overland trailer hauls gave one Minneapolis company the know-how to make a self-contained prefabricated cooler that won praise from the U. S. Marine Corps in the South Pacific area.

The U. S. Thermo Control Co. here was organized in 1936 to develop refrigeration units for local long-haul operators carrying such perishable foods as butter and eggs, meat and poultry. The company got its first war order from the Marines two days after Pearl Harbor. Today they are working under contract for the Army as well.

Principal feature of the unit is the starting and generator system. The generator itself acts as motor and flywheel, thus cutting down on weight, and of the three component parts, only one is moving. The assembly was developed for use with thermostatic controls in intermittent duty, and may be used with any gas engine.

A safety relay at the control panel stops the unit immediately if the motor runs out of oil, water, or gas, and prevents the battery from discharging when the motor is not running. Starting the engine automatically recharges the battery with 12-volt DC, feeding both the trouble-

shooting extension light and the one within the walk-in cooler.

An added safety feature is an alarm bell that rings when the temperature in the cooler rises 10° above the thermostat setting, calling for attention whether the cause is a breakdown in the mechanism or merely someone's failure to shut the cooler door. The temperature control itself reacts to a 30° differential standard.

A factor greatly adding to efficiency in the field has been the ability of the mechanism to operate on uneven ground, compensated for by a system of rubber shims and take-up bolts adjustable between the coil and engine compartment on the bottom and the evaporator and compressor at the top. The unit has a low side alignment, with a variable air supply.

With the exception of the compressor and cooler compartment, U. S. Thermo Control Co. makes all parts used. Evaporator coil capacity is 12,000 B.t.u.; the compressor is 4-cylinder and air cooled; the power unit a 2-cylinder 4-cycle engine. Gas tank capacity is 25 gallons. Need for defrosting can be checked from outside the cooler without stopping the engine, and the defrosting operation is effected by "hot gas" reversal of the system.

## 'Power Unit' Varied By Model To Run Compressor Under Any Circumstance

LOS ANGELES—Portable refrigerated carriers developed by the Weber Showcase and Fixture Co. are now in use in three branches of the country's armed forces, according to a report from the company's Los Angeles offices. Produced originally for the Navy, units are now in service also with the U. S. Engineering Corps in Honolulu and with the Public Roads Administration on the Alcan highway in Canada.

The box is refrigerated by three types of power unit, anticipating varying field conditions. Model B, for outpost camps where no electricity is possible, runs on a straight gasoline drive. Model U is fundamentally gas-engine powered but has an AC connection inlet. Model H has an AC and DC dual motor, but is equipped also with auxiliary jack shaft and drive belts for gas-engine operation when necessary. The cooling mechanism is completely automatic on all three, with temperatures of 8-10° for frozen foods and 34-36° for fresh foods, maintainable under conditions even of extreme change and intensity.

All three units are equipped with the Kohler gasoline engine, developing 2,000 watts DC, and automatic in operation. The entire units thus can be transported by truck, flat car, or ship.

The vacuum-plate coils within the box are connected by flexible lines to the valved manifold in the control compartment. The refrigerant is "Freon-12." Wedge handles to the double-sealed walk-in door can be operated from inside or out. Switch

and pilot lights are adjacent to the door, and the interior lamp operates from the unit's 24-volt battery.

The power plants that differentiate the three models are fundamentally the same. The model B unit, gasoline driven, uses less than eight gallons for 24 hours under even the most variable conditions. Normal operating time is for 16 hours of the 24. Stub shaft and mercury-actuated clutch drive the compressor directly through V-belts. The generator develops maximum horsepower before the compressor load is engaged. The 1-hp. compressor is air cooled. The over-size condenser, 1½ hp., is adjacent to the louvered door opening, with dual fans directing the air flow over the entire condenser.

The model H unit lays emphasis on the versatility of its electric system. The dual motor is wound for application of either 50 or 60-cycle AC power and may be operated by 115 or 230-volt DC, resistance coils allowing the latter hookup. (The majority of fighting ships are equipped for AC, the majority of merchant ships for 115- or 130-volt DC.) A high-pressure cutout is provided, and overload relays in the generator in both AC and DC systems. Conversion to gasoline power is included in the instructions.

The model U unit is for use where outside power originally is unavailable, but the jack shaft is replaceable by AC motor installation when remotely originated power becomes possible. A separate control system with motor starter is installed within the machine compartment.

## Units Roll Off New Assembly Line at Universal Cooler

### Several Refinements In Design Achieved

MARION, Ohio—One example of the refrigeration industry's response to specific wartime demands is to be seen in Universal Cooler Corp.'s 150 cu. ft. portable refrigerator unit, built to U. S. Navy specifications. Hundreds of these units are now in service, and facilities for the building of an increasing number are now in progress.

The necessity for considerable revision of existing production facilities at the company's main plant in Marion, Ohio, resulted in the use of new manufacturing equipment and methods following closely upon the heels of work done by the research-engineering division of Universal Cooler in assembling data on utility and performance requirements, and the building of a new assembly line that all together enabled the company to better the delivery dates set by the Navy.

Chief requirements to be met promised to be those of stamina and simplicity. Rough handling in transit and in field service had to be anticipated. Simplicity of operation and of repair under conditions of untrained care and adverse weather were no less important.

The finished product thus showed the following characteristics: The unit can be operated by gasoline motor or by electricity, and its operation is entirely automatic. Colored insulation on the wires allow easy manipulation by following a com-



A new production line with new machine tool equipment helped Universal Cooler to better delivery dates on the portable refrigerators it makes.

plete diagram inside the sealed switch cabinet. Additional safety devices protect the mechanism from corrosion and extreme heat. Motor and compressor are balanced to operate without the use of a centrifugal clutch or unloading device. The two "Freon-12" containers are bolted end to end along the tank at the rigid base of the frame, one receiver connected directly with the refrigerant circuit, the other provided with

a shut-off valve for connection with the charging line when additional refrigerant is needed. The unit's tool kit contains the auxiliary jack shaft to replace the electric motor for gasoline operation in case of accident.

The unit was subjected to sweltering temperatures and dropped onto concrete from four-foot levels as part of its final testing. The automatic cooling control was constantly rechecked throughout the tests.

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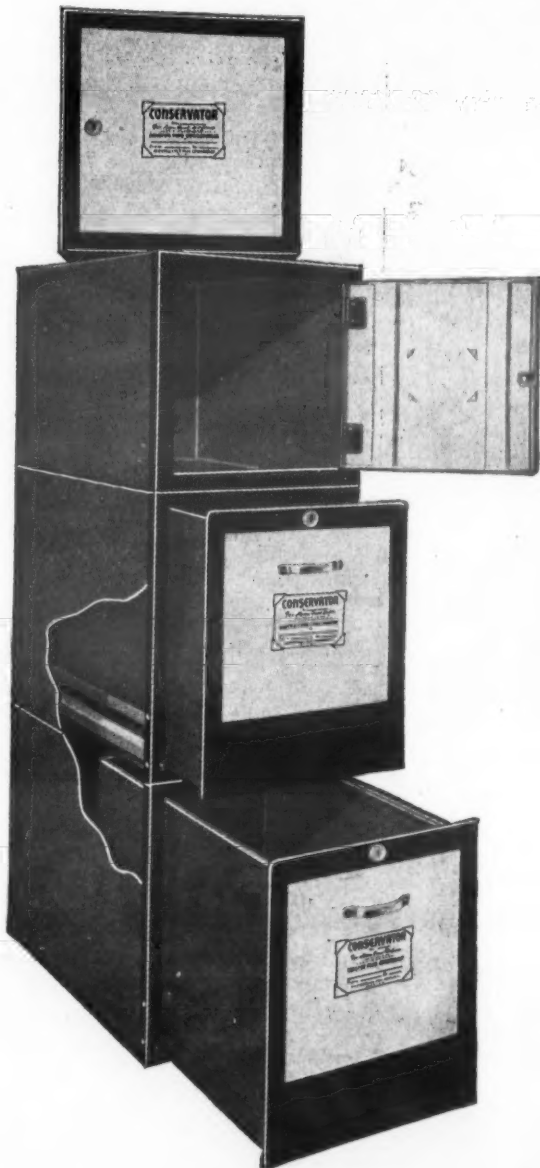
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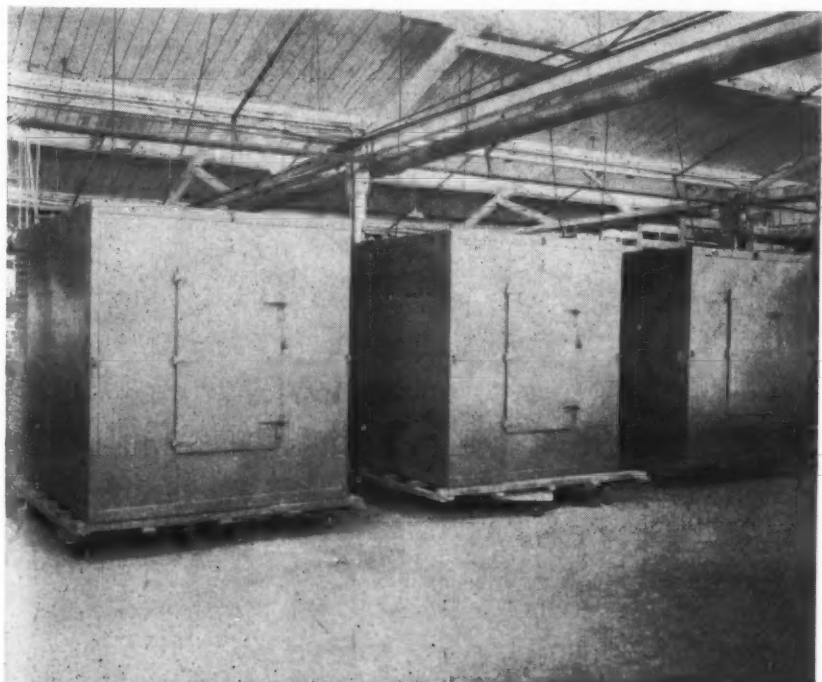
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## Studies Show Economy in Treating Recirculated Air For Ventilation

PITTSBURGH—Enough experience has now been obtained in converting recirculated air for ventilating purposes in air conditioning systems to demonstrate the practicability of the fundamental economies which can be obtained with an air conditioning system of such design. This was the chief conclusion reached in the paper "The Economic Factors in Converting Recirculated Air for Ventilation" by Herbert E. Ziel of Detroit and Henry Sleik of New York City before the recent semi-annual convention here of the American Society of Heating and Ventilating Engineers.

Mr. Ziel is a mechanical engineer with the Albert Kahn Associated Architects and Engineers of Detroit, and Mr. Sleik is vice president of the W. B. Connor Engineering Corp. The studies demonstrated that in actual installations it had been possible to cut the fresh air requirements by 60% or more, with resulting savings in original equipment and operating costs.

It has been long recognized, said the authors, that a preponderance of the total volume of new air required for ventilation is needed solely to dilute internally generated and accumulating air pollution and that the remainder required to maintain adequate oxygen concentration is so small as to be negligible in comparison.

In view of the inconclusive

or negative results of much recent investigation concerning the effect of ionic changes, condensation nuclei, CO<sub>2</sub> concentration indices and other purely chemical reactions, it is still reasonable to assume that aside from its oxygen content, the quality of air freshness is essentially a function of its degree of freedom from foreign impurities.

The principal sources of these impurities in enclosures of residence, assembly and commercial activity are the occupants and their habits—body, apparel and respiratory emanations, tobacco smoke, cosmetics and, where dispensed, liquor and edibles and their cooking or preparation. In the average industrial establishment of a general manufacturing nature there are added contaminating sources such as, particularly, cutting and lubricating oils and greases, hydrocarbons, acidic and metallic oxides, internally generated dust, soot and, occasionally smoke.

In all instances, the aggregate air contamination is in part particulate and in part gaseous. The elimination of the former from return air before it is recirculated is already accomplished by the use of efficient air filters supplemented, where necessary, by electrostatic precipitation. The control of bacteria, when a problem, is within the scope of the sterilization.

It remains, therefore, only to extract the polluting gaseous compon-

ents in order to fully requalify such return air to assume the burden of dilution and thereby permit the volume of new air required to be limited to the function of oxygen replenishment and exfiltration or exhaust replacement.

### Control of Gaseous

#### Contaminants by Adsorption

Active gas adsorbent carbon, produced from nut shells, specially activated by the gaseous oxidation method and processed to a critical apparent density of about 0.45 (for 6 to 14 mesh granules) and a 66% granule porosity, has been found to effectively adsorb and retain most of the foreign organic gaseous substances common to vitiated air at ordinary ventilating temperatures.

The more notable exceptions are CO, CO<sub>2</sub> and ammonia. While these latter are adsorbable in some degree, experience has indicated that the adsorption efficiency of the carbon for these substances at ordinary temperatures is too low to promise a useful contribution. Nor does activated gas adsorbent carbon exhibit like retentivity for all gaseous substances, this being influenced to a great extent by the nature, boiling points and vapor pressures of the organics involved.

However, the quality carbon under consideration and which is similar in structure and specification to that employed in military poison gas masks has an activity or adsorptive capacity ranging up to 70% of its own weight of organic substance.

Further, almost all of the common gaseous contaminations encountered in occupied areas, particularly body excretions, putrefaction gases, acrolein, hydrocarbons, mercaptans, essential oil and flavor essences, sulphurous gases and the like are all highly adsorbable.

While, therefore, there are many variable factors the over-all average adsorption efficiency of this carbon when employed to treat recirculated air in the manner to be explained, has been found to be not less than 95% up to the point where the carbon's saturation does not exceed 15% by weight, independent of moisture. Also, with the low concentration encountered, a saturation of 15% has been observed to represent an exposure of from six months to two years depending upon the nature and condition of service. Furthermore, the carbon when saturated can be repeatedly reactivated for reuse.

Activated gas adsorbent shell carbon has been demonstrated in practice to possess all of the properties favorable to its practical use in ventilation—hardness and durability, freedom from dust, high adsorptive capacity and retentivity for most airborne gaseous impurities, selectivity for these organic substances in preference to moisture (activated carbon

rejects water for organics) and capability of repeated reactivation. Moreover, it has the advantage over all other attacks upon gaseous air contaminants is that it apparently neither adds anything to the air nor alters either its ionic or chemical composition or its thermal and psychrometric state.

### Adsorption Equipment and Its Application

The practical application of activated carbon filtration equipment to the air conditioning system has likewise been developed. The accompanying illustrations are sufficiently self-explanatory to require little elaboration. Summarized, the application consists of the means of suspending in the air stream the requisite quantity of carbon per unit of air to be treated without exceeding a practically allowable resistance to the air flow, yet within a reasonably compact space; and to provide facility for the easy exchange of the carbon periodically for reactivation with a minimum of interruption in service.

The arrangement is such that all air to be treated must pass uniformly through the carbon beds, thereby being subjected to uniform duration of contact with the adsorption media. In ordinary applications, the air velocity through the carbon beds is approximately 35 f.p.m. and, as a consequence of the serried development of the beds, the air approach velocity to the assembled unit is about 250 f.p.m. Thus, the face area of the assembled treatment unit approximates that of the average air filter and the depth (in direction of air flow) about 4 ft. The resistance to air flow is 0.15 in. of water.

In considering the practicability of qualifying return air for use as ventilation, it is emphasized again that this applies to dilution ventilation only, independent of oxygen make-up. It is, therefore, necessary to segregate the two demands. In other words the total ventilation, as determined by the designing engineer for the particular application, based upon his individual experience or conviction, need not be disturbed.

Instead, however, of satisfying this total ventilation entirely with outside air, that portion of the total ventilation required alone for the dilution of contaminants, i.e., to control the concentration of internally generated impurities, can be obtained by the use of decontaminated return air added to recirculation and, therefore, be deducted from what would otherwise be the required outside air volume. It remains, then, to determine what should be considered the safe minimum of outside air volume required solely for oxygen replenishment, and CO<sub>2</sub> concentration control if preferred.

It has been advanced that 1 c.f.m. of new air per person will provide

ample oxygen for an active worker and that 3½ c.f.m. per person will prevent the CO<sub>2</sub> concentration from rising above 1%, a limit generally regarded as providing an ample factor of safety. The authors believe that, pending further research, a minimum of 5 c.f.m. of new outside air per occupant will preclude any enervating effect. This conclusion is based upon the result of dilution computations.

It is doubtful also, whether, in common ventilation practice it will often be advantageous to consider a reduction in outside air supply to less than 5 c.f.m. per occupant because, in all but hermetically sealed enclosures, the normal infiltration, or the outside air volume introduced mechanically to counteract infiltration effect, will usually exceed the maximum demanded to maintain a safe oxygen and CO<sub>2</sub> concentration. The infiltration factor will, therefore ordinarily provide the simplest criteria for the establishment of the new air component. An example will make the foregoing clear as well as illustrate the modified approach to a typical ventilation problem recommended by this paper.

### How 'Fresh Air' Requirements Are Reduced in Calculations

Assume a building with a volume of 500,000 cu. ft. and an occupancy of 1,250 and requiring an air conditioning system having a total circulating capacity of 100,000 c.f.m. (12 turnovers per hour). Further, that the nature and activity of the occupants is such that 25,000 c.f.m. or 20 c.f.m. per person (3 air changes per hour) is the correct ventilation necessary to maintain satisfactory internal air quality.

In line with the previous conclusions, the outside or new air may be reduced to 6,250 c.f.m. (5 c.f.m. per occupant). In the instance under consideration, however, it is conceivable that the infiltration factor may be one air change per hour or 8,333 c.f.m., equivalent to 6.67 c.f.m. per occupant.

In order, then, to take advantage of the outside air reduction permitted physiologically or dictated by building filtration and yet maintain both the stipulated total air circulation of 10,000 c.f.m. and the required ventilation of 25,000 c.f.m., the indicated modification would be as follows: 100,000 c.f.m. total air, 8,333 c.f.m. outside air and 91,667 c.f.m. recirculated air of which latter 16,667 c.f.m. (25,000-8,333) is decontaminated.

Since, however, it has been found that the over-all efficiency of the carbon decontaminating medium to be employed is 95% (this will apply approximately, likewise, for dust filters and bacteria control, if used), it is merely necessary to compensate by treating 16,667

0.95

of the recirculated air. This, incidentally, is a factor meriting emphasis. Since the process is one of dilution, its efficiency is capable of control by compensation.

A device capable of extracting 95% of the entrained contaminants from a given volume of air may be said to provide uncontaminated air equivalent to 95% of the volume treated. Should, therefore, further experience warrant a revision of the present 95% over-all efficiency, it would modify only the ratio of air to be treated.

In calculating the economic effect contributed by the substitution of qualified return air for outside air ventilation, it is simply necessary to segregate the outside air load, a method of computation already used

(Concluded on Page 19, Column 1)

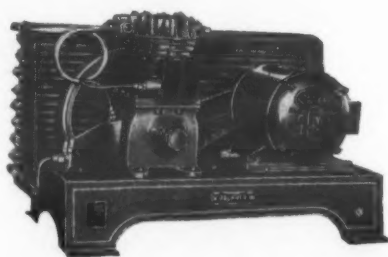


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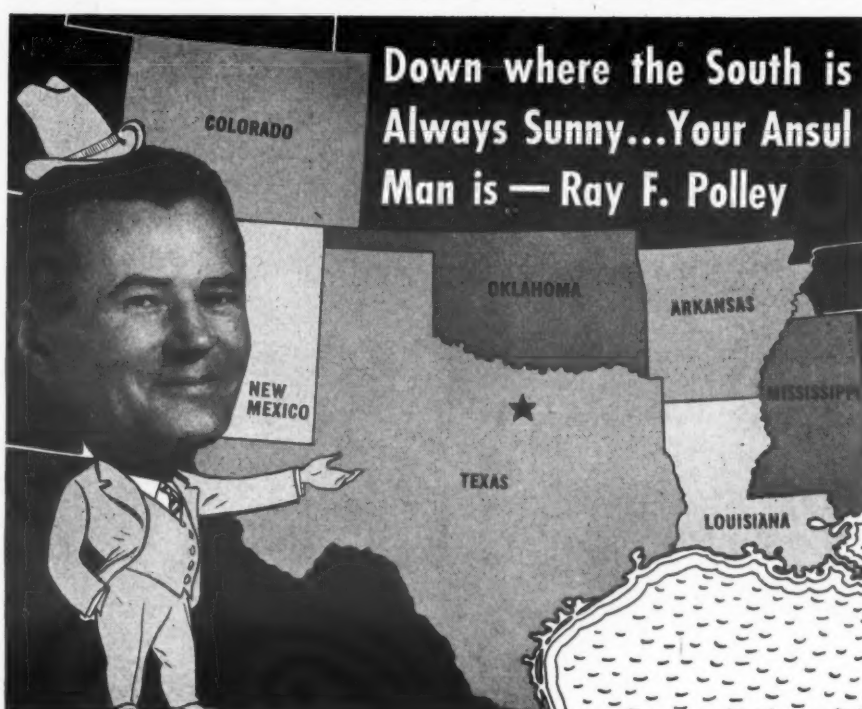
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## Figures Presented on Savings In Treating Recirculated Air In Conditioning Jobs

(Concluded from Page 18, Column 5) by many designers in preference to the calculation of air mixtures.

In fact, it can be demonstrated that regardless of the method adopted, the outside air supply is a distinct and unrelated conditioning load and, therefore, a calculable entity in the summation of the equipment capacity and energy required by the conditioning system.

For instance, assume the building already used in the previous example to be located in the average temperate zone with an outside design condition of 0°F for the heating season and 76° wet-bulb for the cooling season and that the inside requirements are 70° F dry-bulb and 40% relative humidity (56° wet-bulb) for winter and 67° wet-bulb for summer, the saving in installed conditioning equipment capacity for a reduction of 16,667 c.f.m. in outside air will then be:

$$16,667 \times 60 \times 23 = 1,643,000 \text{ B.t.u.}$$

$$\frac{14}{\text{hour installed heating capacity.}} \\ 16,667 \times 60 \times 7 =$$

$$13.3 \times 12,000 = 43.9 \text{ tons of installed refrigeration.}$$

The 23 and 7 B.t.u. per pound of air differential, respectively, between inside and outside conditions used in the foregoing equations are approximate and will vary insignificantly depending upon the particular psychrometric table used.

### Savings Translated Into Fuel, and Energy for Cooling

The respective operating savings in cooling energy and fuel may likewise be computed for the average mean climatic conditions. Assuming a heating season of 5,000 degree-days and an average outside temperature

$$5000 \text{ of } 40^\circ \text{ or } \frac{65-40}{15} = 200 \text{ average heat-}$$

ing days with 70% over-all heating efficiency and 24 hours per day heating, the saving in B.t.u.'s per heating season will be:

$$16,667 \times 60 \times 24 \times 200 \times 10.8$$

Converted into fuel oil that 145,000 B.t.u. per gallon, this represents a saving of 36,500 gal. per heating season. For coal at 14,000 B.t.u. per lb., it means a conservation of approximately 190 tons per season.

Similarly assuming a cooling season of 1,500 operating hours, an average cooling load of 60% of design load and 0.75 k.w. hours input per ton of refrigeration, the saving in energy is:

$$16,667 \times 60 \times 1500 \times 7 \times 0.6 \times 0.75$$

$$\frac{13.3 \times 12,600}{\text{or approximately 29,000 k.w. hours per cooling season.}}$$

### Saving Is Constant Factor

By segregating the outside air load it becomes apparent that except in abnormal cases, this load is uninfluenced by the internal heat load because all outside air introduced must be converted from prevailing outdoor to prevailing indoor conditions.

It will be observed that, up to the point where the internal heat gain is so great that economy ceases to be a factor, the saving in both heating equipment and fuel for a reduction of 500 c.f.m. in outside air is a constant of 25,000 cubic foot-degrees regardless of the internal heat gain and that this constant is equivalent to the heat required to convert 500 c.f.m. from 20° outside to 70° inside temperature.

The same applies, likewise, to cooling. By assuming 90° outside, 70° inside and 10,000 cubic foot-degrees equivalent room radiation gain, the

saving in recirculating 500 of 1,000 c.f.m. total air is  $500 \times (90-70) = 10,000$  cubic foot-degrees regardless of internal heat gain except that, in this instance, the series is infinite, it being assumed that there would be no internal cooling influence.

The authors, through their respective experiences, have been afforded several opportunities of applying in practice the principles to which this paper is devoted, and it is deemed adequate to append a factual review of but one of these applications.

### Treatment of Recirculated Air for Aircraft Plant

In designing the air conditioning system for a mid-west plant of the Pratt and Whitney United Aircraft Corp., it was determined that the requisite ventilation for the cafeteria, locker rooms, toilets and similar areas ordinarily demanding a high air change rate would be 458,000 c.f.m. Also that, due to design conditions, over half the air displacement would have to be in summer cooled as well as winter heated zones while the remainder would be in winter heated zones only. The design conditions were, Winter —10° outside, average for Oct. 1 to May 1, 44.3°; Summer 100° dry-bulb, 76° wet-bulb, average load 60%.

Through the aid of activated carbon adsorption, it was found possible to divide this ventilation requirement into 77,000 c.f.m. outside air, sufficient to counteract infiltration effect and 381,000 c.f.m. of decontaminated return air added to recirculation. Thus the indicated dilution ventilation and total air circulation was maintained but the outside air load was reduced by 80%.

Further, as the primary purpose of the carbon application was to reduce the outside air conditioning load, it was only necessary for it to be in operation during such periods when the outside temperature rose above 78° or fell below 55°F. By designing the method of control accordingly, full advantage could thus be taken of outside air ventilation when it imposed little or no demand on cooling or heating energy and, at the same time, conserve the service life and, therefore, the maintenance of the air purification equipment.

The recovery of 381,000 c.f.m. con-

ditioned air effected a saving of approximately 800 tons of installed refrigeration and 33,000,000 B.t.u. per hour capacity of installed heating apparatus. The estimated operating saving per average heating season is 53,000,000 lb. of steam or, approximately 500,000 gal. of fuel oil.

### Figures on Original Cost

Both the cost to reclaim vitiated conditioned air for ventilating use and the alternate cost to condition replacement air are too variable to permit precise comparison in this paper. Careful analysis indicates, however, that the installed cost of equipment to effectively decontaminate return air rarely approaches the installed cost of the additional refrigeration alone required to cool an equivalent volume of new air.

And with heating apparatus costs added, the use of outside air for dilution ventilation is obviously at a decided economic disadvantage. This seems true likewise of operation, the maintenance of decontaminating equipment being appreciably less costly than the fuel and energy its use conserves.

### Alabama Legislators Seek Air Conditioning

MONTGOMERY, Ala.—Legislation appropriating money to air condition the House and Senate chambers and the executive mansion has been introduced in the Alabama legislature.

The bill would appropriate \$50,000 to air condition the Senate and the House, and \$12,500 for the executive mansion.

## Maxwell Field Hospital Not Designed For Air Cooling, But System is Installed Anyway

MAXWELL FIELD, Ala.—Better success with major operations and much more valuable post-operational care of patients is being assured at the Maxwell Field hospital here with installation of air conditioning, officials declare.

The Maxwell Field installation plant is a 15-ton Fairbanks Morse system which cools two major operating rooms on the east second floor of the hospital, the sterilizer room, a large pre-operation chamber, washroom, and a single ward for patients following surgery.

Installation of the system by post engineers required considerable ingenuity inasmuch as the hospital is a stucco permanent building with no provision for conditioning at its building. The operating rooms in addition are completely glass-walled, making for a heavy sun load six hours a day which required extra-powered equipment. Also, there was no means of sealing off the conditioned sections tightly from the others.

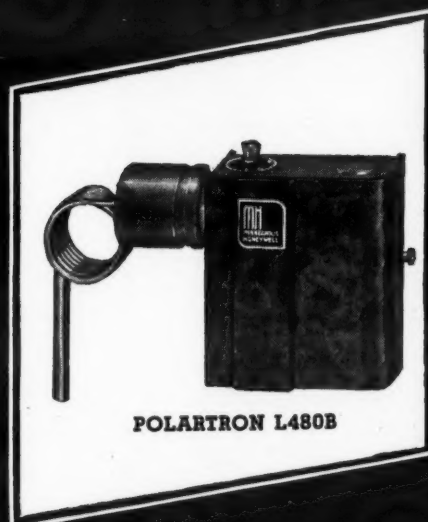
The system installed consists of a 15-ton compressor unit which was placed in a room formerly used for storage in the basement. Refrigerant from the compressor is sent up three floors to a dead-air space under the roof, where an air intake was cut through, and the coils and fan installed. Air coming through is washed, filtered, and processed

against pollen or other allergy-causing contents. It then passes through a double "Freon" coil bank, chilling it to 70° F., and enters an overhead duct distribution ceiling which leads to the center of each room. The ceiling grilles are anemostat type, chosen to circulate the cooled air entirely without drafts over the rooms concerned.

Individual thermostat controls for each room allows the temperature to be kept at the precise point best for medical purposes. In the two operating rooms the temperature is held around 76° with a two degree variance maximum permitted. In the patient's convalescing wards, 79 or 80° is maintained.

Dehumidification equipment in the attic fan chamber allows for a 50% or less relative humidity—important particularly in the wards where patients with respiratory ailments are kept. Pilots injured in crashes find dry air is much more conducive to quick recovery.

The circulated air is removed by knocking out the top of a closet, and constructing a duct out of the building roof. A steel grille was placed in the closet door, through which an exhaust fan pulls the cooled air. Air is changed once every two minutes. Finally, the hallway leading into the operating section was equipped with heavy glass doors with fibre sealing edges.



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(EDITOR'S NOTE: At the recent Spring meeting of the American Society of Refrigerating Engineers in Cleveland, a special session was devoted to a "Corrosion Conference," in which four papers explored the subject of corrosion in exhaustive detail. The NEWS presents herewith excerpts from two of the papers which bear directly on corrosion problems of the refrigeration and air conditioning industry, and on corrosion-inhibiting practices.)

## Refrigerants

If a small amount of moisture mixes with a large volume of refrigerant, the volume of moisture and pressure must be sufficient to result in condensation of aqueous

### Ammonium Hydroxide (Ammonia)

Ammonium hydroxide, while not as strong an alkali as sodium hy-

### Carbonic Acid (Carbon Dioxide)

Carbonic acid is a relatively weak acid and in dilute, unaerated solutions at room temperature is suitably resisted by all the common metals and alloys. More concentrated solutions may be strongly corrosive to zinc and mild steel. With steel, corrosion is considerably greater at pH values lower than 4.5 than above it. Aluminum is apparently resistant in the absence of base metal salts. A high degree of aeration of saturated solutions, particularly under pressure, may make carbonic acid corrosive to copper and high copper alloys, Monel, nickel and lead. Stainless steels and Inconel are resistant under all conditions. Leakage of carbon dioxide into brine may make it acid and consequently corrosive to steel and galvanized iron.

Wet methyl chloride is reported to attack aluminum in the presence of suitable catalysts to form a spontaneously inflammable compound called aluminum trimethyl.

**Hydrocarbons (Ethane, Propane, Iso-Butane, Butane)**

According to Johnston, if the water content of sulfur dioxide in the refrigerating machine after charging, is kept below 50 p.p.m. (0.005%) corrosion is avoided.

## Sea Water

It can sometimes be overcome to a useful extent in circulating lines by treatment of the sea water with chlorine in amounts high enough to suppress marine growths but low

### Air Conditioning Wash Waters

Most serious corrosion is likely to take place in the water saturated air stream immediately beyond the eliminators which the inhibitor does not reach, and where fluctuation of controls causes alternate condensation and vaporization of moisture. In this region non-ferrous materials are fre-

(Concluded on Page 21, Column 1)



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AIR CONDITIONING  
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**Curtis Refrigerating Machine Division**  
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CANADA PAT. 354,703 U.S. PAT. 2,219,393 NEW ZEALAND PAT. 83,338

REFRIGERATION ENGINEERING Inc.  
LOS ANGELES NEW ORLEANS

**WAGNER  
MOTORS**  
for All War Needs  
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Modern Display Cases  
Coolers, Refrigerators

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For 1962 — most complete range of styles and sizes — 12 to 71 1/2 cu. ft. — in the industry. New modern styling — priced for real value.



*Reach-in*  
**CABINETS**

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*Knows that "10% for War Bonds isn't enough these days"*

Last year's bonds got us started—*this year's bonds are to win!* So let's all raise our sights, and get going. If we all pull together, we'll put it over with a bang!

you've done your bit  
... now do your best!



★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★



## Causes and Control of Corrosion In Refrigeration Systems

(Concluded from Page 20, Column 5) quently used.

In systems where air is dehumidified by direct condensation on refrigerated coils, the condensate from industrial atmospheres may be corrosive. In very dilute sulfuric acid solution, copper would be satisfactory but in appreciable concentrations lead-coated copper or stainless steel would be better.

### Refrigerating Brines

Corrosion by refrigerating brines has been the subject of so much study by this Society that it is not considered necessary to discuss it extensively here.

The concentrated solutions of sodium chloride, calcium chloride or mixtures of calcium and magnesium chlorides used for refrigerating brines, have each a concentration range where the corrosive effect is least and an attempt should be made to keep within this range. Development of acidity and aeration are highly detrimental and should be avoided as much as possible.

Brines are good electrical conductors which encourages electrolytic corrosion by galvanic action and pitting. Uninhibited neutral brines are corrosive to aluminum, zinc, and iron. Lead and tin are moderately resistant. Copper and high copper alloys, Monel, and nickel have good resistance. The stainless steels frequently are subject to severe pitting attack.

The addition of inhibitors such as alkaline sodium chromate or dichromate usually decreases corrosion to the point where most of the metals and alloys can be used. Recommendations for proper inhibiting treatment are available from numerous sources.

The following is taken from the paper "Organic Resin Coatings," by G. H. Young and G. W. Seagren, Mellon Institute of Industrial Research, University of Pittsburgh.

### The Protection of Metals by Organic Coatings

In the formulation and application of corrosion-preventing organic coatings, all of the fundamental considerations, previously discussed, must be continually taken into account. The specific conditions under which the coated metal is to be used to a great extent dictate the choice of resin vehicle, of pigmentation, and of application methods—spraying, dipping, brushing, roller-coating.

But no matter what ultimate end use may be contemplated, certain well-recognized preparative steps are necessary for optimum performance—whether it be desired to protect a tin can, a steel drum, a cooling coil, a water line, or a battleship.

**Surface Pretreatment Prior to Coating.**—The field of metal surface pretreatments has been extremely active within the past several years. Increased attention has been directed at the role of the metal-coating interface as the conditioning factor in corrosion resistance.

For maximum protective performance from organic films, the bond to the metal surface must be uniform, tight and strain-free. An early forward step, now widely used, was sand blasting just prior to painting. It has the double effect of removing loosely adherent mill scale or other preformed oxide together with non-metallic contaminants such as oils, soaps or greases, and roughening the surface to present a greater specific area to adhesion forces in the resin molecules.

Recently there has come into prominence a forced desiccation of the surface by "flame cleaning," utilizing the differential coefficient of thermal expansion of metal and oxide scale. The scale splits off, is wire-brushed away, and the clean, hot metal may be painted at once. In proper hands the technique seems to offer real promise.

The wide variety of proprietary inhibitive wash systems currently offered to the metal fabricator testifies to the increasing importance of corrosion prevention efforts along this line. These systems, primarily designed for application to steel, are in their simplest form chemical methods for producing dense insoluble surface films of the phosphate or chromate type.

For best performance the treated

surface must be force-dried to free it from adsorbed water before painting. Where this precaution is taken, performance under subsequently applied paints and varnishes has been extremely satisfactory.

Use of such washes between sand blasting and painting has added many years to the useful life of fabricated articles thus treated. Application to massive structures such as bridges has so far not been widespread because force-drying is difficult and when this step is omitted performance is erratic.

**The Use of Pigmented Paints and Varnishes.**—Probably the oldest method of protecting metal against corrosion involves painting with film-forming organic compositions, pigmented or not. Far-reaching advances in vehicles for protective coatings have been achieved within the past decade.

While oil-base points still represent the major volume of such coatings, use of resin-fortified oils and even of oil-free synthetic vehicles is definitely increasing, with a distinct trend toward "baked" coatings or enamels where practical application methods are available.

The almost complete change in automobile finishes from nitro-cellulose lacquers to alkyd and urea-alkyd baking synthetics is a significant trend.

For special linings in food containers, steel drums, tank cars, milk trucks and chemical processing equipment, increasing practical use has completely demonstrated the applicability of baking type phenol-aldehyde condensation products, certain alkyds and urea resins, and synthetic thermoplastics based on vinyl halides and vinyl or acrylic esters.

Increased attention has been directed at pigment influences in protective paints. There are in general three distinct pigment types: (1) metal powders; (2) inert insoluble inorganic compounds of certain metals, typically calcium, barium, aluminum, titanium, and iron; (3) sparingly soluble "inhibitive" compounds of zinc, lead, chromium and a few other heavy metals.

Complex coating systems have been evolved which combine any two or all three types of pigment in a single vehicle; performance is still predominantly a function of relative impermeability and inertness to atmospheric or solution degradation of the resinous vehicle.

Of the metallic paints, aluminum powder dispersions in a suitable vehicle are perhaps best known. Their efficacy depends on the inertness of the plate-like particles of oxide-coated aluminum layered within the paint film. Much the same holds true of metallic paints based on copper and lead powders. Zinc dust paints function sacrificially as does zinc on galvanized iron or on zinc sprayed metals.

Incorporating small percentages of inhibitive pigments of the zinc oxide or zinc chromate type in such metallic paints has proven advantageous for many applications.

Inert pigments such as silica, barium sulfate, titanium dioxide, lead titanate and iron oxide in oil-base vehicles continue to prove satisfactory for many applications where an extremely corrosive environment is not encountered.

Such protective films are effective only so long as they remain impermeable to moisture, adhere tightly to the base metal, and are free from mechanical imperfections such as scratches, pinholes and the like.

Certainly the commonest pigmented coatings are those containing inhibitive pigments, of which the sparingly soluble chromates are newer but not necessarily better than the others. For general atmospheric protection on structural steel, red lead in linseed oil continues to be the major coating.

The respective merits of red lead and zinc chromate are inhibitive pigments have been exhaustively studied in numerous laboratories. It may be fairly stated that for normal atmospheric exposure red lead is certainly not inferior to the chromate systems. For under water work the chromate type coating appears to have a certain superiority. Recent advances in the manufacture of chromate pigments are still further enhancing this under-water superiority.

## R. L. Coe Again Heads Copper and Brass Group

NEW YORK CITY — Robert L. Coe, Chase Brass and Copper Co. vice president, was re-elected president of the Copper and Brass Research Association.

Theodore E. Veltfort was re-elected manager, and Bertram B. Caddle, secretary. C. Donald Dallas, president of Revere Copper and Brass, Inc., was re-elected treasurer.

Vice presidents elected were: Wylie Brown, president, Phelps Dodge Copper Products Corp.; John A. Coe, chairman of the board, The American Brass Co.; William A. Goss, vice president, Scovill Mfg. Co.; Curtis L. Smith, treasurer, The National Copper and Smelting Co.; and Herman W. Steinkraus, president, Bridgeport Brass Co.

## NEWS! Congressman Defends OPA'S Job

CHICAGO — The Office of Price Administration is being criticized too freely, according to A. S. Monroney, Oklahoma Democrat, who cautioned furniture dealers and manufacturers convening here not to overlook the objectives of the maximum price order while allowing little grievances to assume exaggerated importance.

"The much-abused OPA," he said, "is standing out against inflation and saving all of us from its ruinous effects. Inflation is just under the crust now. You cannot spend \$225,000,000,000 for war without inviting it as a constant threat."

## Installment Sellers See Danger of Being 'Smothered' By Regulation W Ideas

NEW YORK CITY — Referring to the blessing of such devices as electric refrigerators and washing machines in the average American home, Nathan S. Sachs, treasurer of Sachs Quality Furniture, Inc., and president of the Retail Credit Institute of America, declared recently at the first annual meeting of the group that installment selling must not be smothered by advocates of Regulation W.

Installment selling is the factor which maintains the high level of American living standards, according to the institute, and it plans to outline for the benefit of both government and the public all facts showing the part installment selling has played in raising the living standards of the country.

"None of us would be foolish enough to pretend to be completely altruistic," Sachs said. "We have prospered and it is good. But the people have prospered also, and the industry of America which depends on mass production methods has developed and prospered, because retailers have found the system of installment selling which has put such things as electric refrigerators and washing machines within the reach of the average family."

Cecil D. Kaufman, former chairman of the temporary board of directors, cautioned about "shortsightedness of some installment sellers who favor Regulation W because, for the first time in their history,

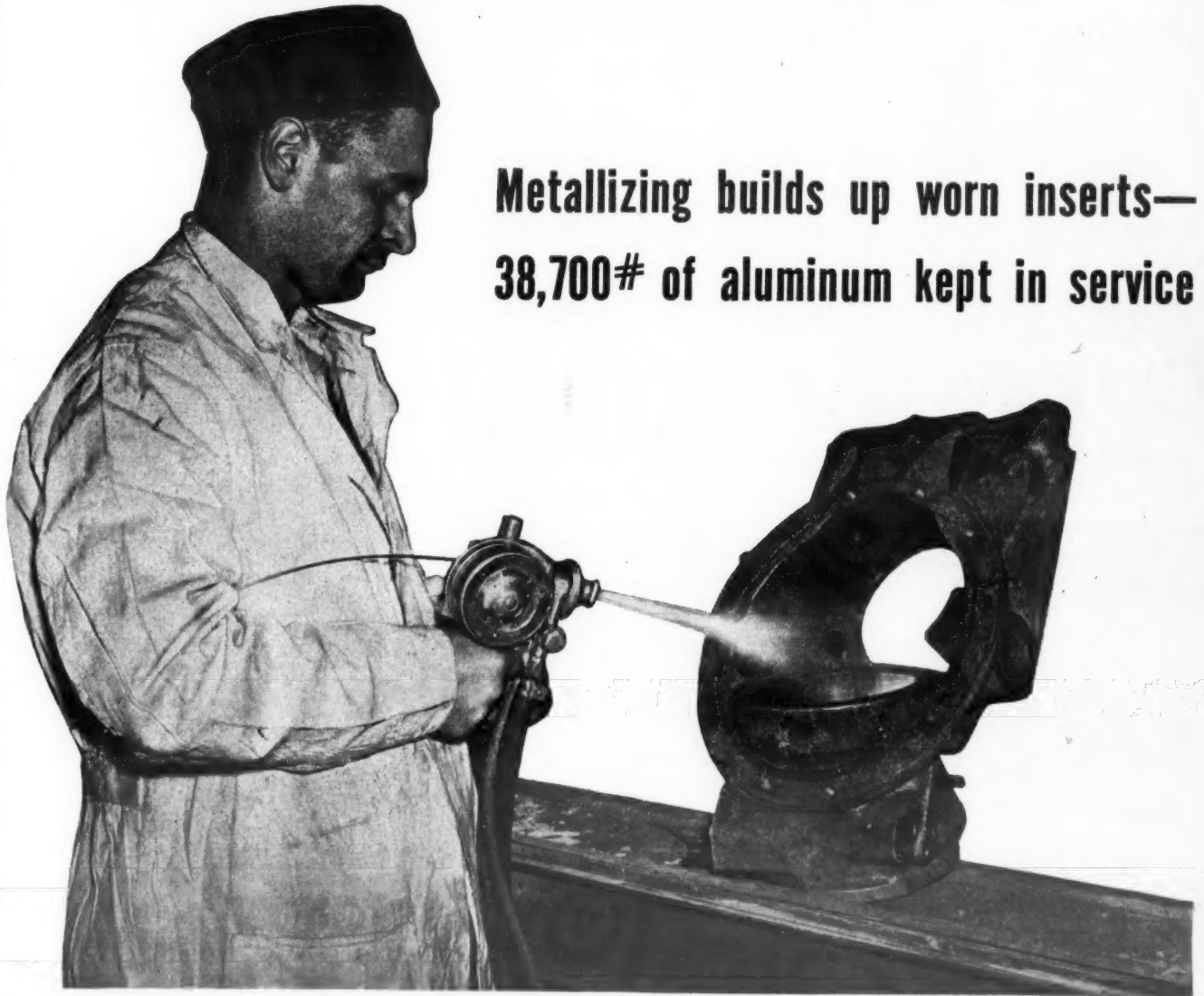
they are completely free of debt and have money in the bank." Kaufman believes that Regulation W is merely a temporary measure yet, he says, if it were allowed to become permanent, would ruin installment selling and every merchant engaged in it.

Although Regulation W is not the big issue, Sachs said that it is of enough importance to give enemies of installment selling the support they need to carry out their plans of liquidating the installment business.

The institute insists that it is the right of the common man to buy what he chooses, within his means. To this end, the institute plans to expose any "inaccuracies of comment and statistics that erroneously reflect upon the effect of installment credit" which may turn up during the research work on its program.

"Those who, for example, would look upon installment credit as the cause of divorce and broken homes and everything evil that happens to the American family will be forced to prove these outlandish claims. Against them will be set the millions in whose home there is the comfort of modern American living never previously even hoped for by the working man," Sachs stated.

It was reported that the institute's program of research and education would be placed at the disposal of any government agency or other organization wanting it.



**Metallizing builds up worn inserts—  
38,700# of aluminum kept in service**

Nine hundred of these 43-pound aluminum housings were salvaged in a year's time by building up their worn, iron inserts by metallizing. The large amount of precision machining that would be required for finishing new castings was avoided. The old bearings were re-used, and the reworked assemblies gave more service than originally.

Thus the war effort is being aided by conservation of materials and labor, and the continuation in service of hard-to-get equipment.

The iron insert in this housing is subjected to severe thrust from the gears, so it must be anchored solidly. This is taken care of by casting

it integrally with the aluminum housing. Building up a worn insert by metallizing does not disturb this security, nor does the work reduce the high strength of the aluminum. The added metal is bored out and the original bearing put back in place, ready for additional months of service.

Perhaps there's a cue here on means of maintaining your hard-working aluminum alloy equipment. Had the aluminum part of this assembly been worn, it, too, could have been salvaged by metallizing with aluminum. Alcoa engineers will gladly advise you on methods of doing this. ALUMINUM COMPANY OF AMERICA, 1975 Gulf Building, Pittsburgh, Pennsylvania.

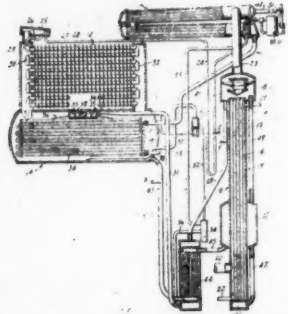
**ALCOA**  **ALUMINUM**



# PATENTS

Weeks of June 1 & 8

2,320,349. **REFRIGERATION.** Walter Cropper, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Sept. 25, 1941, Serial No. 412,949. 9 Claims. (Cl. 62-1.)



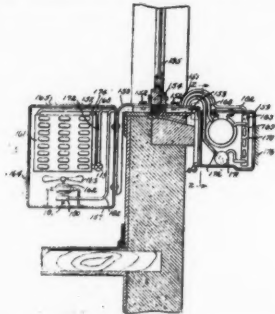
1. In a refrigeration system of an absorption type having a plurality of interconnected parts, one of said parts providing a chamber, and a stack of cupric oxide plates disposed in said chamber.

2,320,432. **REFRIGERATING APPARATUS.** Charles F. Henney, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Oct. 24, 1939, Serial No. 301,016. 5 Claims. (Cl. 62-6.)

1. Refrigerating apparatus for an enclosure to be cooled and dehumidified comprising in combination, an evaporator, a condenser, a compressor, refrigerant flow connections between said evaporator compressor and condenser, fan means for

flowing air over said evaporator, means responsive to the dry bulb temperature in said enclosure for varying the flow of air over said evaporator, and means responsive to the dry bulb temperature of the air for passing a portion of the refrigerant directly from the high side of said compressor to the low side of said compressor.

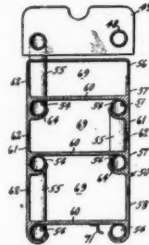
2,320,436. **REFRIGERATING APPARATUS.** Harry B. Hull, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Original application Dec. 31, 1938, Serial No. 248,679. Divided and this application May



28, 1941, Serial No. 395,648. 7 Claims. (Cl. 62-129.)

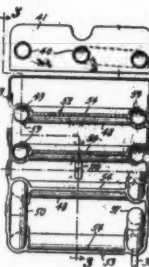
1. Apparatus for conditioning air for a room or the like comprising in combination, a cabinet disposed within said room, an evaporator within said cabinet, a motor-compressor unit, a condenser located outside of said room, refrigerant flow connections between said condenser, evaporator and compressor, and common means for supporting said condenser and said cabinet, said last named means including means for adjusting the position of said condenser relative to said cabinet.

2,320,500. **REFRIGERATION.** Carl T. Ashby, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Nov. 2, 1939, Serial No. 302,503. 13 Claims. (Cl. 62-126.)



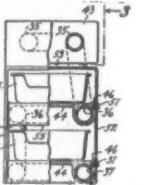
1. A cooling unit or evaporator including a shell provided with a shelf and a looped coil or conduit in thermal exchange therewith, said shell having ribs thereon disposed above said shelf and spaced therefrom substantially the diameter of said conduit to provide channels, said channels being located and said looped coil being formed so that said shell and said coil can be slidably moved together, with the channels receiving portions of said looped coil during such relative sliding movement without interference by the connecting bends of said looped coil.

2,320,501. **REFRIGERATION.** John A. Taylor, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Nov. 3, 1939, Serial No. 302,635. 10 Claims. (Cl. 62-126.)



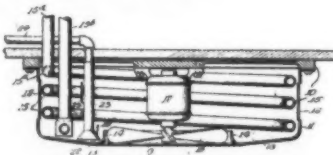
1. A cooling unit comprising a shell providing a freezing enclosure, said shell having side walls and shelves disposed between said side walls, the major portion of each of said shelves providing a smooth supporting surface, a formation integral with and extending along the sides of said shelves from the front end to the rear end of the shell, certain of said formations being united to form one of said side walls and said remaining formations being united to form said other side wall, each of said formations comprising a pair of ribs of which one is curved upwardly from the shelf carrying such formation and the other of which is curved downwardly therefrom, one of each of said pair of ribs being shaped to provide a portion of one of said side walls, said formations being arranged to provide channels extending along said side walls and disposed one above another, a looped coil having horizontal U-shaped loops disposed one above the other with horizontal bends connecting the spaced apart arms of said loops at one end of said shell and vertical bends at the other end of said shell each connecting a leg of one of said horizontally disposed loops to the corresponding leg of the loop adjacent thereto, the straight portions of said loops being disposed in said channels along said side walls.

2,320,502. **REFRIGERATION.** Tage Schullstrom, Stockholm, Sweden, assignor, by mesne assignments, to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Nov. 6, 1939, Serial No. 302,969. In Germany Nov. 7, 1938. 4 Claims. (Cl. 62-126.)



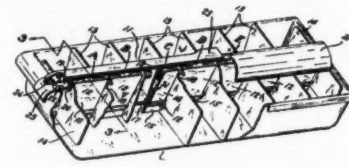
1. A cooling unit or evaporator including a pipe having a plurality of vertically spaced pairs of substantially straight parallel horizontally extending sections, the sections of each pair being connected together at their forward ends by return bends disposed in different substantially horizontal planes and adjacent pairs being connected by return bends disposed in substantially vertical planes, plate members supported on said pairs of sections and provided with vertically extending flanges or ribs along the sides thereof, said flanges or ribs being formed to embrace said straight sections to provide for heat transfer therebetween, and a lip extending downwardly at the forward end of each plate in front of the horizontal return bends.

2,320,525. **AIR CONDITIONING UNIT.** Richard W. Kritzer, Chicago, Ill. Application Aug. 6, 1941, Serial No. 405,593. 6 Claims. (Cl. 62-140.)



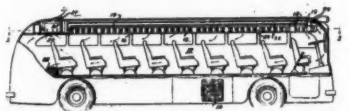
1. In an air conditioning unit, the combination with a housing provided with an inlet and an outlet for air, an evaporator for cooling the air in the housing, and a motor-driven fan associated with the housing and for forcing air there-through, of means for retaining condensate from the evaporator in the housing, an electric heating element for vaporizing the condensate in the retaining means, means for automatically controlling the actuation of the heating element by the condensate in the retaining means, a conduit for conducting the vapor through the housing, and means for insulating the conduit to prevent heat transfer to the air flowing through the housing.

2,320,534. **REFRIGERATION.** Ralph C. Osborn, North Canton, Ohio, assignor to The Hoover Co., North Canton, Ohio, a corporation of Ohio. Application Oct. 21, 1938, Serial No. 236,267. 15 Claims. (Cl. 62-108.5.)



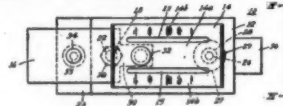
1. A grid assembly adapted to be positioned in an ice tray, said grid assembly comprising rigid longitudinal and lateral grid members suitably secured together in such manner as to divide an ice tray into a plurality of compartments when placed therein, U-shaped members of flexible material secured to said longitudinal grid member between each pair of lateral grid members and means for flexing said flexible U-shaped members.

2,320,596. **REFRIGERATING APPARATUS.** Charles F. Henney, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Jan. 26, 1940, Serial No. 315,845. 1 Claim. (Cl. 98-10.)



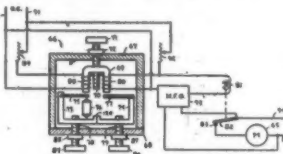
In combination with a vehicle having a relatively long narrow passenger compartment, evaporator means adjacent the upper rear corner of said compartment, means for flowing air to be conditioned in thermal exchange relationship with said evaporator means, means for distributing the conditioned air within the passenger compartment comprising a pair of air distributing means arranged along opposite sides of said passenger compartment, each of said distributing means comprising an air distributing chamber extending along one side of said compartment for substantially the full length of said compartment and having the one side thereof provided with stamped sheet metal air grille means extending substantially the full length of said chamber, said air grille means being provided with integrally formed oppositely disposed air deflecting louvers for directing converging streams of air outwardly towards the center of the bus, certain of said louvers adjacent the front end of said compartment being arranged to direct air forwardly along the front wall of said compartment, a return air grille adjacent the rear of said passenger compartment through which air returns to said evaporator, and refrigerant liquefying means for supplying liquid refrigerant to said evaporator means.

2,320,873. **THERMOSTAT.** Paul R. Lee, Mansfield, Ohio, assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Aug. 17, 1940, Serial No. 353,021. 6 Claims. (Cl. 297-15.)



1. A snap-acting device comprising, in combination, a supporting structure, a snap-acting bimetallic element including a central strip and two exterior strips together with end portions joining the respectively adjacent ends of said strip, and a resilient member rigidly attached solely to the central strip as distinguished from said end portions and to the supporting structure for supporting said element outside of its boundaries.

2,320,881. **CONTROL APPARATUS.** Alvin B. Newton, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Aug. 3, 1940, Serial No. 350,296. 7 Claims. (Cl. 236-44.)

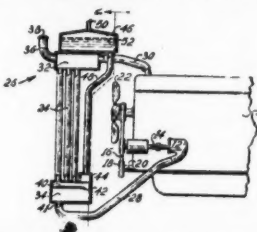


4. A system for operating a current responsive control device in accordance with the effective temperature of a space to be controlled including in combination, a source of alternating electrical energy, an impedance having a core of magnetic material and a coil about said core, an armature having its ends adjacent the ends of said core, means for regulating the distance between one end of said armature and the adjacent core end in accordance with the temperature of the space to be controlled, means for regulating the distance between the other end of said armature and the corresponding core end in accordance with the humidity of the space to be controlled and a connection between said source of energy and said control device including said coil.

2,320,889. **COOLING SYSTEM.** Frank E. Rowan, Kenosha, Wis., assignor to Nash-Kelvinator Corp., Kenosha, Wis., a corporation of Maryland. Application

Feb. 10, 1941, Serial No. 378,202. 12 Claims. (Cl. 123-174.)

5. A cooling system for an internal combustion motor comprising a sealed upper header, a core connected to the underside of said upper header, a lower header connected to the bottom of said core and having a top wall unobstructed by said core, said top wall sloping upwardly to the center of said lower header to form a trap, a baffle positioned in said lower header underneath said core and having



a lip positioned underneath said trap, an outlet for said lower header positioned (Concluded on Page 23, Column 1)

## CLASSIFIED ADVERTISING

RATES for "Positions Wanted," 5¢ per word; minimum charge, \$2.50. Three consecutive insertions, 12½¢ per word; minimum charge, \$6.25.

RATES for all other classifications, 10¢ per word, minimum charge, \$5.00 per insertion. Three consecutive insertions, 25¢ per word, minimum charge, \$12.50.

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### POSITIONS AVAILABLE

**SERVICE MAN** for air conditioning machines—permanent position; state experience, draft status, salary desired. New York City. Box 1440, Air Conditioning & Refrigeration News.

**ENGINEER WANTED:** An opening is available with a most desirable, progressive commercial refrigeration manufacturer requiring a good application engineer. Must have good basic knowledge of refrigeration principles and practice. Applications confidential. State all pertinent information. Box 1442, Air Conditioning & Refrigeration News.

**SERVICE MANAGER.** Permanent position. Guarantee minimum of \$3,000 annually to start. Write giving age, experience, education, and references, also family status. Only high type man capable of taking responsibility and operating sizeable service organization and parts department wanted. Real opportunity for advancement in well established company handling commercial refrigeration, air conditioning, heating, and ventilating in fast growing Southwest. Air Conditioning & Refrigeration News, Box No. 1452.

### EQUIPMENT FOR SALE

**CARBON TETRACHLORIDE.** \$1.40 per gallon in 5 gallon lots; limited quantity, 50¢ deposit for container; ½ to ½ h.p. 2-cylinder Frigidaire compressor, \$7.00 4-tray evaporators, wound with ¾" copper lined tubing, expansion type, like new with porcelain fronts, less trays, \$8.50. 2-tray Frigidaire used, evaporators, with float, complete less trays and brackets, \$8.50. 3-tray, same as above, \$10.00. Used Frigidaire complete highspeeds, Model "K" with bare copper tubing condenser, low pressure switch and frame enclosure, ½ h.p. capacity, complete less motor, \$15.00. Send for bargain catalogue. F.O.B. EDISON COOLING CORP., 310 E. 149th St., New York City.

**PANEL COOLERS.** 6,000 B.t.u. @ 20° T.D. white baked finish, with all steel coils and 1/30 H.P. 110 volt A.C. motors 52" high, 18½" side, 9½" deep. Limited quantity \$62.50 net each. Air cooled condensers, all copper coil, 52 sq. ft. surface. 2 row, 2 pass, 32 tubes, 21¼" long. 15 13/16" high, 2" deep, ¾" F.P.T. top and bottom headers. Heavy duty ½ H.P. capacity \$11.85 net each. Terms cash with order or COD—J. GEO. FISCHER & SONS, INC., Saginaw, Mich.

**INTERNATIONAL ¼ H.P. refrigeration unit** complete with pressure control and an extra ¼ H.P. refrigeration motor with proper RPM pulley for \$99.50 net FOB Saginaw, Michigan. Both motors are 110 volt, single phase, 60 cycle. With this combination you can deliver a ¼ or ½ H.P. condensing unit for emergency service. J. GEO. FISCHER & SONS, INC., Saginaw, Mich.

**SURPLUS STOCK** Beta Blower Coils complete with all-copper coil and 110 volt, 60 cycle motor. Model number indicates B.t.u. per hour per 1" T.D.—N. 233, \$72.50; No. 320, \$87.50; No. 400, \$94.50. Immediate shipment in original crates. No priority required from dealers and distributors. J. GEO. FISCHER & SONS, INC., Saginaw, Mich. Established 1889.

**SURPLUS STOCK** refrigeration unit bargains, all complete with 110 volt, 60 cycle motor and pressure control: International—¼ H.P., \$79.50; Mills—¼ H.P., \$89.50; Universal—¼ H.P., \$99.50; International—½ H.P., \$139.50; International—1 H.P., \$164.50; International—1½ H.P., \$199.50. Immediate shipment in original crates. No priority required from dealers and distributors. J. GEO. FISCHER & SONS, INC., Saginaw, Mich. Established 1889.

### EQUIPMENT WANTED

**WANTED NEW** or used washing machine motors ¼, ½, ¾ H.P. A.C. 60 cycle. Wallace Johnston Co., 760 Union, Memphis, Tenn.

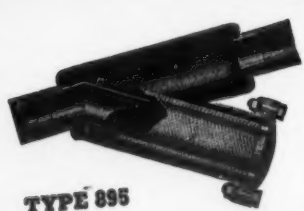
**WANTED: USED AIR** Conditioning Equipment for Office and Factory Use. Good condition. Required for Industrial War Plant, Toledo Area. Advise what you have. Air Conditioning & Refrigeration News, Box No. 1451.

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TYPE 895

**Henry Valve Co.**  
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CHICAGO

## Henry "Y" Strainer

Exceptional design. Hot tin dipped welded steel construction with copper end connections (steel in F.P.T. sizes). Negligible pressure drop. Large screen area with easily removable screen. Light weight. Oil trapping prevented by installing on side or in vertical position.

**ASK YOUR JOBBER FOR IT**

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## Patents (Cont.)

(Concluded from Page 22, Column 5)

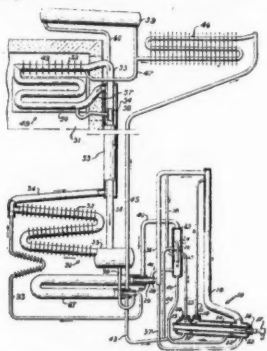
underneath said baffle, an overflow tank positioned on top of said upper header, and a vent pipe communicating between said trap and said overflow tank.

**2,320,978. AIR CONDITIONING SYSTEM UTILIZING REFRIGERATION.** Robert T. Palmer, Sharon, Mass., assignor to E. F. Sturtevant Co., Boston, Mass. Application June 21, 1940, Serial No. 341,601. 3 Claims. (Cl. 62-117.)



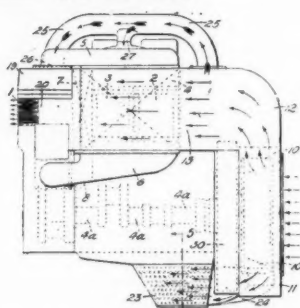
1. An air conditioning system for a passenger vehicle, comprising a plurality of fans spaced longitudinally of the vehicle, means including a partition extending longitudinally of said vehicle dividing said fans into two groups, an air cooler connected to one of said groups, a recirculated air passage and an outdoor air passage connected to said cooler, an outdoor air passage connected to the other of said groups, refrigeration supply means for said cooler, and means including a thermostat for deenergizing the fans of said other of said groups and for energizing said supply means and for throttling the supply of outdoor air through said first mentioned outdoor air passage and for admitting air from said recirculated air passage into said cooler.

**2,321,060. REFRIGERATION.** Carl T. Ashby, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Sept. 16, 1941, Serial No. 410,978. 11 Claims. (Cl. 62-119.5.)



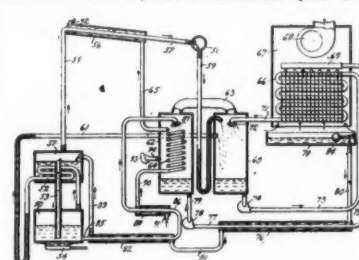
2. A refrigeration system including an evaporator, an absorber, a gas circuit including said evaporator and absorber, a condenser for supplying liquid refrigerant to said evaporator, a generator for supplying refrigerant vapor to said condenser, and a liquid circuit including said generator and absorber, said liquid circuit also including an analyzer, said analyzer being of a type in which vapor comes into contact with absorption liquid while raising the liquid by vapor lift action, a rectifier for vapor flowing to said condenser, said rectifier being located at a level below the surface level of liquid in said analyzer, and a lift for raising condensate from said rectifier to said analyzer.

**2,321,097. AIR OR GAS COMPRESSOR.** Edward Cecil Mills, Camborne, England. Application Dec. 30, 1941, Serial No. 424,910. In Great Britain Dec. 23, 1940. 8 Claims. (Cl. 123-119.)



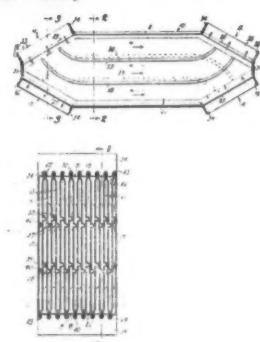
6. A gas or air compressor driven by an internal combustion engine, comprising in combination with a crankshaft, a two stage compressor cylinder and a plurality of combustion engine cylinders, pistons in said cylinders connected to said crankshaft, an intercooler connected between the two stages of said compressor, an aftercooler connected to the second stage of said compressor cylinder, an air duct embracing said combustion engine cylinders and said intercooler for cooling same, a fan carried by said crankshaft for circulating cooling air above atmospheric pressure through said duct, louvers in said duct adjacent said compressor cylinder and said aftercooler for directing air thereover to cool same, and branch conduits leading from a region of said air duct in advance of said combustion engine cylinders and connected to the inlets of said combustion engine cylinders and said compressor cylinder for supercharging same with cool air.

**2,321,115. AIR CONDITIONING.** Albert R. Thomas, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Feb. 6, 1940, Serial No. 317,478. 9 Claims. (Cl. 62-129.)



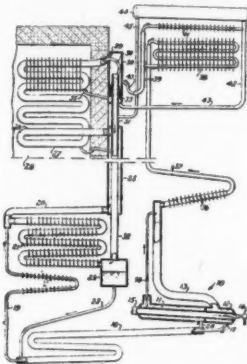
1. A system for conditioning temperature and moisture content of air including means for flowing air, means for flowing cooling fluid in thermal transfer relation with the air and counter-current to the direction of air flow, and means for flowing moisture absorbing fluid in contact with and counter-current to the direction of air flow and through only the portion of the heat transfer path from air to the cooling fluid toward the direction from which the air flows.

**2,321,110. HEAT EXCHANGER.** Bennet Carroll Shipman, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Aug. 25, 1936, Serial No. 97,746. 17 Claims. (Cl. 257-245.)



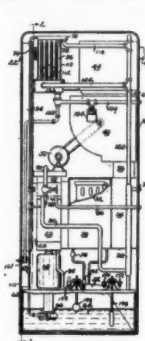
12. A heat exchanger including a plurality of heat transfer plates arranged alongside each other with each plate having substantially parallel opposed edges intermediate the ends and inwardly sloping edges at the ends, said plates having the edges thereof offset laterally in opposite directions with the extreme edge portions substantially parallel to the main body portions of said plates, said plates being arranged to form a zigzag structure having a plurality of passages between adjacent plates abutting an edge of an adjacent plate and the other offset edge abutting an edge of an opposite adjacent plate, structure for closing the passages at the extreme ends of said plates, a plurality of closure strips for closing the passages between the edges of adjacent plates along the intermediate portions having opposed parallel edges, the abutting sloping edges of said plates being secured together to provide a plurality of openings, two groups of the openings at opposite ends of said plates serving as an inlet and outlet for fluid flowing through alternate passages and the other two groups of openings at the opposite ends of said plates serving as an inlet and outlet for fluid flowing through the other passages.

**2,321,113. REFRIGERATION.** John A. Taylor, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Sept. 17, 1941, Serial No. 411,094. 7 Claims. (Cl. 62-179.)



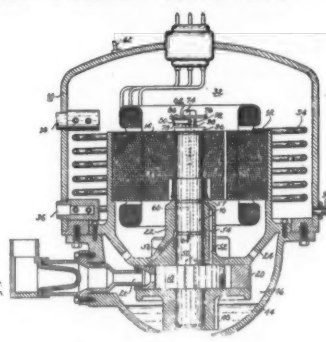
2. A refrigeration system employing evaporation of refrigerant fluid in the presence of inert gas and having a circuit for inert gas including an evaporator and an absorber, a condenser, conduits for conducting liquid from different parts of said condenser to different parts of said evaporator, said conduits coming into mutual heat exchange and one of said conduits holding liquid in the presence of gas in said circuit between said evaporator and said absorber thereby cooling by evaporation takes place both of the liquid itself and the liquid with which it is in heat exchange relation.

**2,321,137. REFRIGERATING APPARATUS.** Frank W. Gerard, Oakwood, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Jan. 24, 1941, Serial No. 375,824. 1 Claim. (Cl. 62-129.)



In combination, a cabinet, a first air flow passage in said cabinet, a second air flow passage in said cabinet, a first cooling coil in said first air flow passage, a second cooling coil in said first air flow passage, a sump in said cabinet adapted to contain a hygroscopic liquid, means for spraying hygroscopic liquid from said sump over said first cooling coil so as to cool said liquid and simultaneously cause said liquid to remove moisture from the air in said first air flow passage, a regenerating coil in said second named air flow passage, means for supplying a heating medium to said regenerating coil, means for circulating hygroscopic liquid from said sump over said regenerating coil so as to regenerate said hygroscopic liquid, means for circulating air to be conditioned through said first named passage, means for flowing air through said second named passage in said cabinet so as to carry away the moisture liberated from the hygroscopic medium circulating over said regenerating coil, refrigerant liquefying means in said cabinet for supplying refrigerant to said second named cooling coil, said last named means including a water coil for absorbing heat, and means for supplying cooling water to said first named coil and said water coil in series.

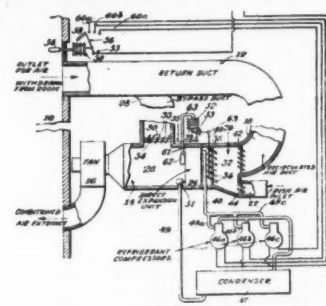
**2,321,151. REFRIGERATING APPARATUS.** Alex A. McCormack, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application March 26, 1941, Serial No. 385,294. 5 Claims. (Cl. 62-115.)



1. In a refrigerating system having a high pressure portion and a low pressure means for supplying lubricant to said portion, a compressor comprising a shaft, shaft means for supplying lubricant to said shaft including a lubricant passage having one portion in communication with the low pressure portion of said system, a centrifugal unloader carried by said shaft having means for equalizing the

pressure between the high pressure portion of said system and the low pressure portion of said system, said unloader utilizing said one portion of said lubricant passage as an unloading passage.

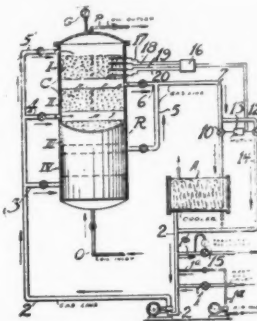
**2,321,242. METHOD AND APPARATUS FOR CONDITIONING AIR.** Melvin Atkinson Ramsey, Buenos Aires, Argentina. Application Nov. 14, 1939, Serial No. 304,317. In Argentina July 6, 1939. 4 Claims. (Cl. 62-129.)



1. In an air conditioning system comprising a room to be conditioned, a return duct for recirculated air having a spent air inlet end and a spent air discharge end, a mixing zone, a refrigerating and dehumidifying zone communicating with said mixing zone, a fan communicating on its suction side with said mixing zone and on its exhaust side with said room, said return duct communicating with its spent air inlet end with said room and with its discharge end with said refrigerating and dehumidifying zone on the side thereof remote from said mixing zone to direct recirculated air through said refrigerating and dehumidifying zone, direct expansion refrigeration means in said refrigerating and dehumidifying zone adapted to treat recirculated air and comprising compressors and motors to drive said compressors, a by-pass connecting said return duct with and defining said mixing zone and adapted to by-pass untreated recirculated air, a by-pass baffle on said by-pass a main baffle between said spent air discharge end and said refrigerating means, means including means responsive to a function of the surface temperature of said refrigerating means operatively associated with said by-pass baffle and said main baffle to vary the relative positions thereof in response to variations in said function and means including means responsive to room conditions operatively associated with said motors to vary the capacity of said refrigerating means in response to room conditions.

**2,321,294. METHOD OF CONTROL OF TEMPERATURES IN REGENERATION OF CATALYSTS.** Charles E. Hemminger, Westfield, and Charles W. Tyson, Summit, N. J., assignors to Standard Oil Development Co., a corporation of Delaware. Application Sept. 27, 1938, Serial No. 231,870. 3 Claims. (Cl. 252-242.)

2. The process of regenerating a solid catalyst contaminated with combustible material which comprises forcing a heated oxygen-containing gas into said catalyst at an inlet temperature at least sufficiently elevated to cause immediate combustion of the said contaminations upon contact with the said gas and thereafter supplying under superatmospheric pres-



sure a further quantity of oxygen-containing gas to the said catalyst, through a regenerated portion thereof to support further combustion of said contaminants in unregenerated portions, the inlet temperature of the last-named gas being substantially elevated above atmospheric temperature, but below that necessary to cause immediate combustion of the contaminants at the pressure employed, whereby the regenerated portion of the catalyst is cooled and the last-named portion of gas is heated to ignition temperatures, and then raising the inlet temperature of the regeneration gas to about its original inlet temperature during the final phase of the regeneration.

**135,772. DESIGN FOR A WATER COOLER.** Christopher M. Cordley, New York, N. Y., assignor to Cordley & Hayes, New York, N. Y., a corporation of New York. Application Feb. 4, 1943, Serial No. 109,449. Term of patent 14 years.



The ornamental design for a water cooler, as shown and described.

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VISOLEAK reveals "hard to find" leaks of all refrigerants. Add 4 oz., plus an extra ounce for each 10 lbs. of refrigerant, to system.

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## Active With Carrier



D. D. WILE

## Wile With Carrier Engineering Staff

SYRACUSE—D. D. Wile has joined the engineering staff of Carrier Corp., according to an announcement by H. L. Laube, vice president and head of the engineering division.

Mr. Wile has a broad background in engineering and manufacturing. After completing engineering courses at the University of Kentucky, he joined the American Radiator Co. as research engineer. After several years he went to Detroit Lubricator Co., where he served as chief engineer of the refrigeration and air conditioning division. From 1937 until 1941, Mr. Wile was chief engineer of the refrigeration division of the Savage Arms Co. For the past two years he has been general plant manager of the Kellogg division of the American Brake Shoe and Foundry Co.

## Norge Plant To Make Helicopter Parts

(Concluded from Page 1, Column 5) special decks will be built on all Liberty ships to permit helicopters to be used against submarine attack.

The Sikorsky Aircraft Division of United Aircraft Corp. in Bridgeport, Conn., is building helicopters for the U. S. Army, and Sikorsky has been a frequent visitor in Detroit. It was his own suggestion that resulted in the contract under which Norge will produce the transmission driving the main, overhead propeller for lifting power and the power take-off operating the tail propeller for torque control, according to Norge officials.

## A.S.H.V.E. Plans For 50th Meeting Next February In N. Y.

PHILADELPHIA—The selection of New York City for the 50th anniversary meeting of the American Society of Heating and Ventilating Engineers has been announced by President M. F. Blankin, Philadelphia. The dates chosen by the Council at its June meeting are Jan. 31 and Feb. 1 and 2, 1944.

The New York chapter of the society will be hosts for the occasion and arrangements for the meeting will be handled by a special committee headed by Alfred J. Offner, consulting engineer, and including R. H. Carpenter, J. C. Fitts, W. E. Heibel, C. S. Koehler, Capt. A. E. Stacey, Jr., and R. A. Wasson, president ex-officio of the New York chapter.

## John Haber of Philco International Dies

HAVANA, Cuba—John S. Haber of New York City, vice president of Philco International Corp., died in Havana, Cuba, June 15 of peritonitis following an emergency operation for acute appendicitis. He was 46 years old.

Mr. Haber had been in Mexico City and proceeded from there to Havana, where he was stricken shortly after his arrival. On receiving word of his illness, Mrs. Haber hurried to Havana and was there when he died.

## Price Control Put On Re-built Parts

(Concluded from Page 1, Column 4) ing March, 1942, have been and re-25, 1943. The order provides that the maximum prices are subject to the same discounts and the same rendition of services which the manufacturer extended on sales of equivalent new parts or subassemblies to the same class of purchaser on March 1, 1942. The measure also defines a reconditioned or rebuilt part and specifies that the ceilings may be charged only if the reconditioned equipment is guaranteed to perform 90 days of satisfactory operation. main under the provisions of the

General Maximum Price Regulation at the highest price charged during that month by each manufacturer.

The action was contained in Order No. 555, Section 14993 (b), under the General Maximum Price Regulation, becoming effective June

## Retail Ice Workers In Chicago Area Frozen In Jobs

(Concluded from Page 1, Column 5) refrigeration field hasn't yet learned how to cry loudly enough to the right people.

The following is the report on the

ice industry situation as reported in the "Chicago Daily News:"

"Approximately 3,000 employees of the retail ice industry in Cook and Du Page counties were frozen in their jobs in an order announced today by Dean William H. Spencer, War Manpower Commission regional director, declaring the industry locally essential.

"The order, effective tomorrow, covers the entire retail trade except servicing of ice to saloons and entertainment establishments. Lake and Porter counties, Indiana, are included, but Chicago Heights and Harvey were excluded because their area already has been declared a separate WMC labor-management area.

"Under the locally essential design-

nation workers may leave the industry to take jobs at the same or lesser pay but may not obtain new jobs at higher pay without statements of availability from their employers. Spencer said that while the designation carries the same privileges enjoyed by industries on the national list of essential industries, it does not entitle workers to occupational Selective Service deferments.

"The action was taken, Spencer said, following requests of industrial representatives to Thomas H. Wright, acting WMC director for the Chicago and Calumet area, and after the employers had agreed to curtail all luxury services not essential to the health of war workers."



## SAFEGUARD YOUR BUSINESS



The refrigeration business is WORTH protecting! In this field already have occurred some of the most important and far-reaching developments in modern science. In this field, when the war is won, will be revealed present military secrets which will affect production in hundreds of industries, operating methods in thousands of manufacturing plants, and living conditions in millions of homes.

But these developments didn't "just grow"! They were certainly not an inevitable by-product of the war. They were the result of intensive research, expert engineering, and extensive experience. They were the result, above all, of complete and undivided attention to this business . . . AND TO NO OTHER.

By the same token, your stake in refrigeration . . . your earned place in the post-war picture . . . may best be safeguarded by devoting to it YOUR complete and undivided attention. It's worth protecting . . . both to you and your country. How well it is worth protecting you'll never know till the day the war is over.

In the meantime, we're carrying on. We're learning more, designing more, producing more. We're helping to build, under wraps and behind locked doors, one of the great industries of the future. An industry which will certainly move in the vanguard of the post-war boom.

Let's ride the band wagon together!

Yours for a quick and pleasant trip.

PENGUIN PETE

P. S. Safeguard Victory . . . buy U. S. War Bonds.

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